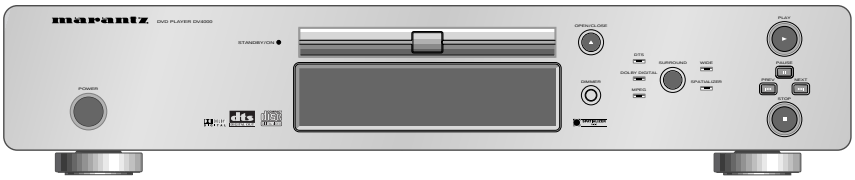
Service Manual

DV4000/F1N, /K1G
/N1B, /S1G, /U1B

DVD Player



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Please use this service manual with referring to the user guide (D.F.U) without fail.
修理の際は、必ず取扱説明書を準備し操作方法を確認の上作業を行って下さい。

marantz®

DV4000

294W855010 AO
3120 785 22290
First Issue:2000.05

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Using superior design and selected high grade components, **MARANTZ** company has created the ultimate in stereo sound. Only original **MARANTZ** parts can insure that your **MARANTZ** product will continue to perform to the specifications for which it is famous.

Parts for your **MARANTZ** equipment are generally available to our National Marantz Subsidiary or Agent.

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Parts can be ordered either by mail or by Fax.. In both cases, the correct part number has to be specified.

The following information must be supplied to eliminate delays in processing your order :

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
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FAX : 630 - 820 - 8103

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東京都渋谷区恵比寿南1-11-9

KOREA

MK ENTERPRISES LTD.
ROOM 604/605, ELECTRO-OFFICETEL, 16-58,
3GA, HANGANG-RO, YONGSAN-KU, SEOUL
KOREA
PHONE : +822 - 3232 - 155
FAX : +822 - 3232 - 154

SHOCK, FIRE HAZARD SERVICE TEST :

CAUTION : After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom.

Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before it is return to the user/customer.

Ref. UL Standard No. 1492.

In case of difficulties, do not hesitate to contact the Technical Department at above mentioned address.

1. TECHNICAL SPECIFICATIONS

Discs played

DVD video disc ..... 12 cm single sided, single layer
12 cm single sided, double layer
12 cm double sided, single layer
12 cm double sided, double layer (one layer per side)
8 cm single sided, single layer
8 cm single sided, double layer
8 cm double sided, single layer
8 cm double sided, double layer (one layer per side)

Compact disc
(CD-DA, Video CD) .....12 cm, 8 cm

Video system.....PAL (625/50)/NTSC (525/60)

Audio system.....Linear PCM audio
MPEG 1/2 audio
Dolby Digital (AC-3)
DTS audio (Digital output only)

Video output

Line output level ..... 1.0 Vp-p / 75 ohms, unbalanced
RCA pin Jack x 1

S1-output level ..... Y output: 1.0 Vp-p/75 ohms unbalanced
C output: 0.3 Vp-p/75 ohms (PAL)
0.286 Vp-p/75 ohms (NTSC)
4 pin mini DIN x 1

R/G/B output..... R/G/B output: 0.7 Vp-p 21-pin SCART connector x 1 (/N1B)

Audio output

Line output ..... 2.0 Vrms / 10 kohms
RCA pin Jack x 1 system

Digital audio output

Optical output ..... Optical connector x 1
Coaxial output ..... RCA pin Jack x 1

DVD linear audio characteristics

Frequency response ..... 4 Hz-22 kHz (Fs = 48 kHz)
4 Hz-44 kHz (Fs = 96 kHz)
S/N ratio .....100 dB (Fs = 48 kHz/24 bit PCM)
Dynamic range .....100 dB (Fs = 48 kHz/24 bit PCM)
Total harmonic distortion ..... 0.0025% (Fs = 48 kHz/24 bit PCM)

CD audio characteristics:

Frequency response ..... 4 Hz-20 kHz (EIAJ)
S/N ratio .....100 dB (EIAJ)
Dynamic range .....100 dB (EIAJ)
Total harmonic distortion ..... 0.0025% (EIAJ)

Pickup..... Wavelength: 655 nm (DVD)
Wavelength: 790 nm (CD)

Power requirements..... 120V AC, 60 Hz (/U1B)
100-240V AC, 50/60 Hz (/N1B)
100V AC, 50/60 Hz (/F1N)
100-240V AC, 50/60 Hz (/K1G,/S1G)

Power consumption..... 20 W (standby mode = approx 1.2 W, power off = 0 W)
Operation temperature..... 5°C-35°C
Operation humidity range..... 5%-90% (no condensation)

Dimensions.....440 (W) x 88 (H) x 332 (D) mm (excluding protrusions)
Weight..... 3.3 kg

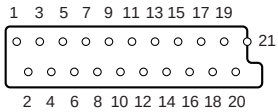
Supplied accessories

AC power cable .....x 1
Auido / Video cable ..... x 1 (/F1N, /K1G, /S1G, /U1B)
D-BUS remote cable .....x 1
Remote control unit ..... x 1
Batteries .....x 2
21-pin SCART cable.....x 1 (/N1B)

- **For improvement purposes, specifications and design are subject to change without notice**

2. CONNECTION FACILITIES

2.1 Video performance (/N1B only)



2.1.1 SCART

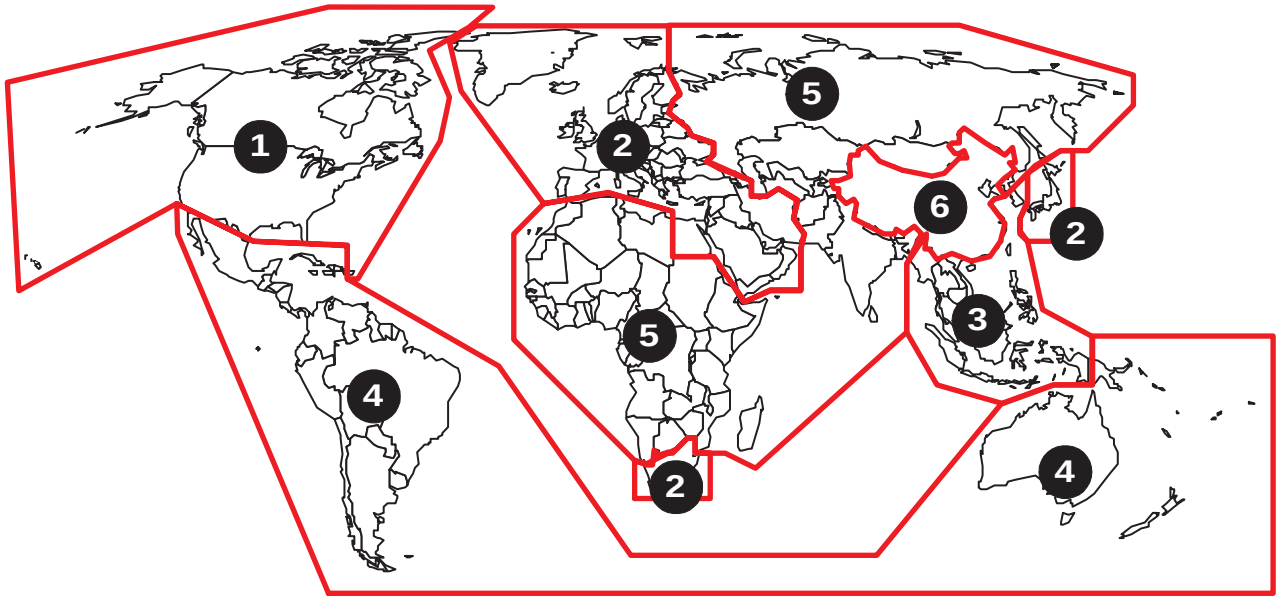
- Pin 1 Audio R out :1.8V RMS
- Pin 2 not connected
- Pin 3 Audio L out :1.8V RMS
- Pin 4 GND
- Pin 5 GND
- Pin 6 not connected
- Pin 7 Blue out :0.7Vpp (0.1V into 75 Ohm (*)
- Pin 8 funcion switching :
  2V TV
  >4.5V / <7V asp. ratio 16:9 DVD
  >9.5V / <12Vasp. ratio 4:3 DVD
- Pin 9 GND
- Pin 10 not connected
- Pin 11 Green out :0.7Vpp (0.1V into 75 Ohm (*)
- Pin 12 not connected
- Pin 13 GND
- Pin 14 GND
- Pin 15 Red out :0.7Vpp (0.1V into 75 Ohm (*)
- Pin 16 fast switching RGB/ CVBS : <0.4V
  into 75 Ohm = CVBS
  <1V/ <3V into 75 Ohm = RGB
- Pin 17 GND
- Pin 18 GND
- Pin 19 CVBS/RGB sync out : 1Vpp (0.1V into 75 Ohm)
- Pin 20 not connected
- Pin 21 GND

(*) for 100% white

What are "regional codes"?

Motion picture studios want to control the home release of movies in different countries because theater releases arenít simultaneous (a movie may come out on DVD in the US when itś just hitting screens in Europe). Therefore they have required that the DVD standard include codes which can be used to lock out the playback of certain discs in certain geographical regions. Players sold in each region will have that regionís code built into the player. The player will refuse to play these "region coded" discs which are not allowed in the region. However, regional codes are entirely optional. Discs without codes will play on any player in any country. Some studios have already announced that only their new releases will have regional codes. There are six regions:

1. United States and Canada
2. Europe and Japan
3. Far East (except Japan & China)
4. South America and Oceania
5. Africa and the Middle East
6. China (except Hong Kong)



Map of DVD Regions

3. INFORMATIONS

REGION CODE

VERSION	REGION CODE	COUNTRY
/FXX	2	JAPAN
/KXX	6	CHINA
/NXX	2	EUROPE
/SXX	3	SINGAPORE/HONGKONG
/UXX	1	USA/CANADA

THE DISCS THAT THE DV4000 CAN HANDLE

The following discs can be played back with a DV4000.

disc	mark	playback capability	size	side
DVD	DVD VIDEO	Audio/Video	12 cm 8 cm	single/double
CD	COMPACT disc DIGITAL AUDIO	Audio	12 cm 8 cm	single
VCD	COMPACT disc DIGITAL VIDEO VIDEO CD	Audio/Video	12 cm 8 cm	single

Note: The regional code of the discs must meet to the regional code of the DV4000.

DVD INFORMATION

Below is a glossary of the new terms related to DVD.

Title:

A disc may have more than one story/movie on it, so each story/movie is called a “title”.
For example, if there are 2 movies on the disc, they are separated into Title 1 and Title 2.

Chapter:

A title may also be separated into chapters.
For example, a movie (title) may be separated into 3 scenes (chapters).

Title 1			Title 2		
Chapter 1	Chapter 2	Chapter 3	Chapter 1	Chapter 2	Chapter 3

Subtitles:

DVDs are recorded with up to 32 different subtitle languages. If a disc has more than one subtitle language, you can select the subtitle language that you want to read.

Soundtrack language:

DVDs are recorded with up to 8 different soundtrack languages. If a disc has more than one language, you can select the soundtrack language that you want to listen to.

Multi-angles:

On some DVDs, scenes have been filmed from different angles (up to a maximum of 9). On these discs, you can select the angle that you want to watch. Please refer to the DVD’s manual to see which scenes have multi-angles.

Parental guide:

Some discs have restriction levels that allow you to cut scenes or prevent playback of discs that have contents that you do not want children to watch.

Safety Lock

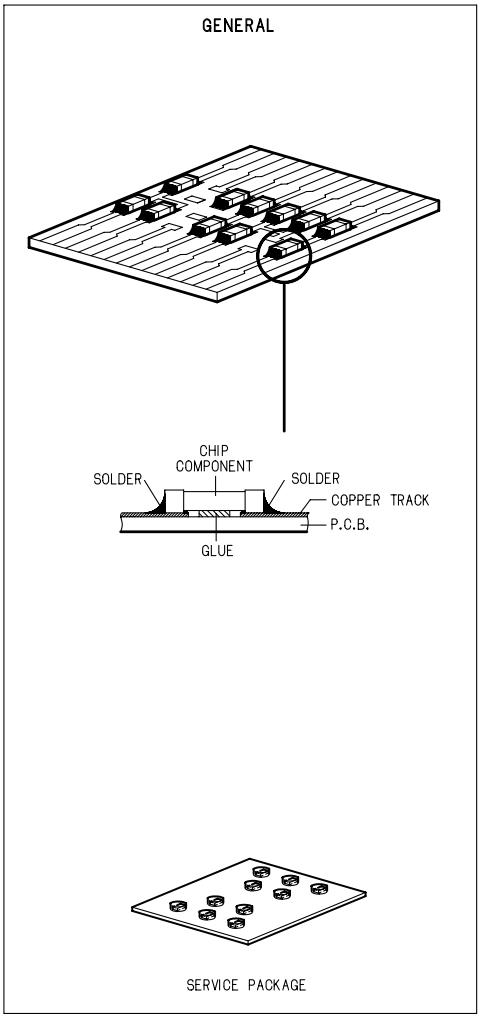
The safety look prevents children from playing discs. When the Safety Lock is set, discs can not be played back.

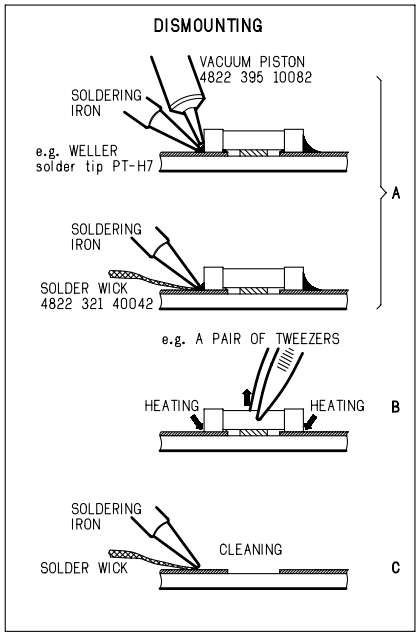
Cancelling Safety Lock

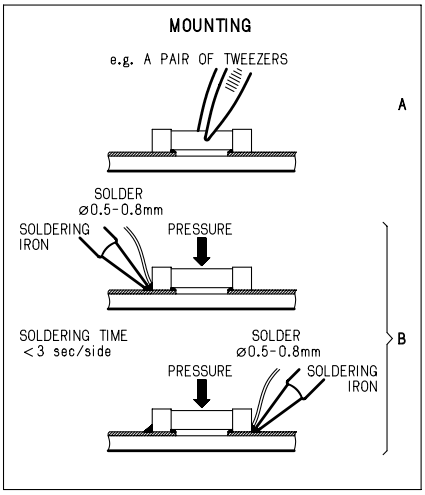
Press the CLEAR button and hold for 10 seconds while the player is stopped.

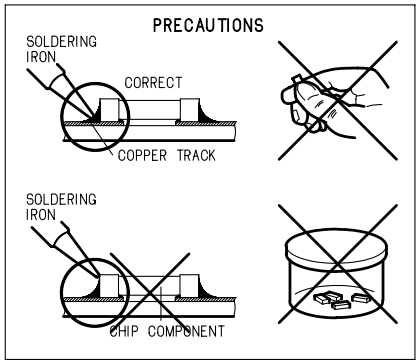
4. SERVICING HINT

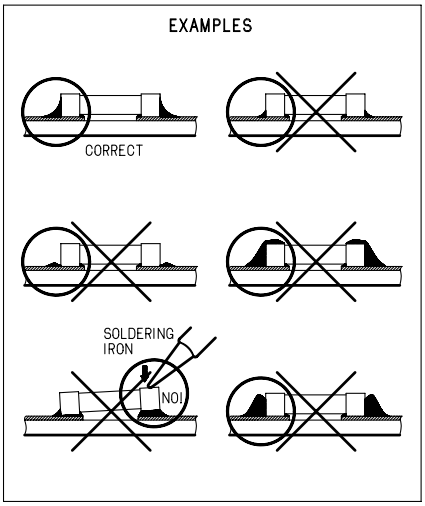
SERVICE HINTS











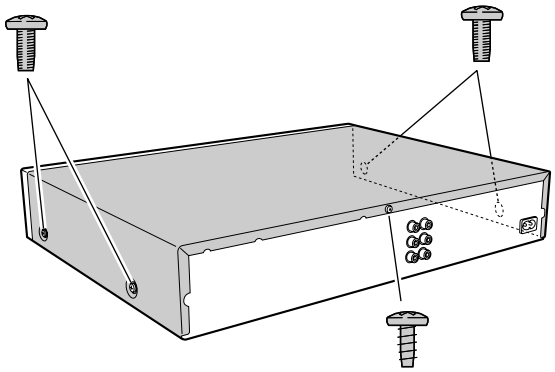
SERVICE TOOLS

Audio signals disc	4822 397 30184
Disc without errors (SBC444)+	
Disc with DO errors, black spots and fingerprints (SBC444A)	4822 397 30245
Disc (65 min 1kHz) without no pause	4822 397 30155
Max. diameter disc (58.0 mm)	4822 397 60141
Torx screwdrivers	
Set (straight)	4822 395 50145
Set (square)	4822 395 50132
13th order filter	4822 395 30204
DVD test disc	4822 397 10131

5. DISASSEMBLY

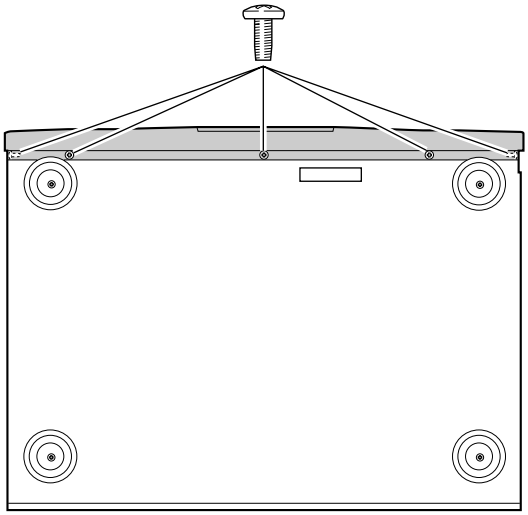
In case of trouble, etc., necessitating dismantling, please dismantle in the order shown in the illustrations. Reassemble in the reverse order.

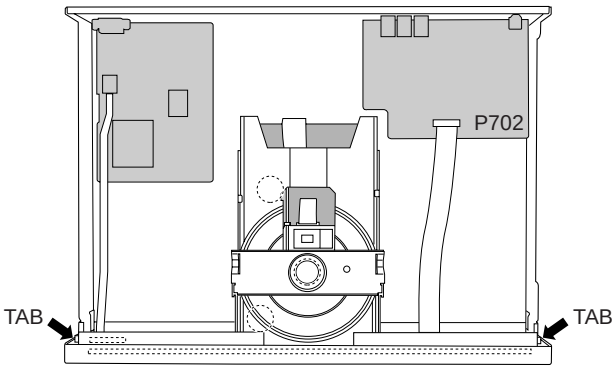
1. Removal of the UPPER COVER



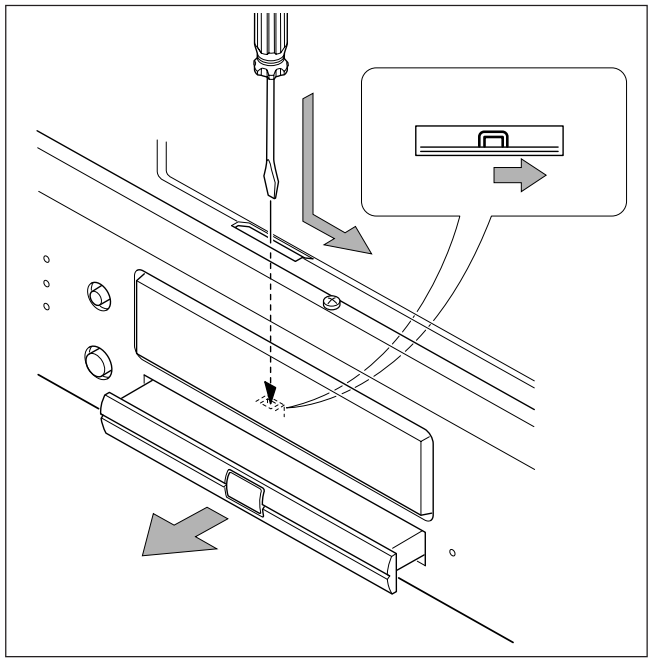
2. Removal of the FRONT PANEL

1) Press the “EJECT” button while the unit’s power is turned on and open the DISC TRAY.
2) Remove the decoration plate on the DISC TRAY by pulling it upward.
3) Remove the three retaining screws on the bottom and two screws on each left and right side of the FRONT PANEL as shown.
4) Disconnect the flat cable from the P702 connector on the OUTPUT PCB .
5) Remove the FRONT PANEL by pulling it forward while releasing the TABs on both left and right ends of the FRONT PANEL.





REMARK : Before disassemble the front panel.
Press open/close button to open the tray.
If the tray doesn’t work, put a small screwdriver into the hole as shown in picture and slide the knob.
Then the tray comes out. After the first centimeter it is possible to pull the tray out by hand. Release the door cover of the tray.



6. PRINCIPAL PARTS LOCATION

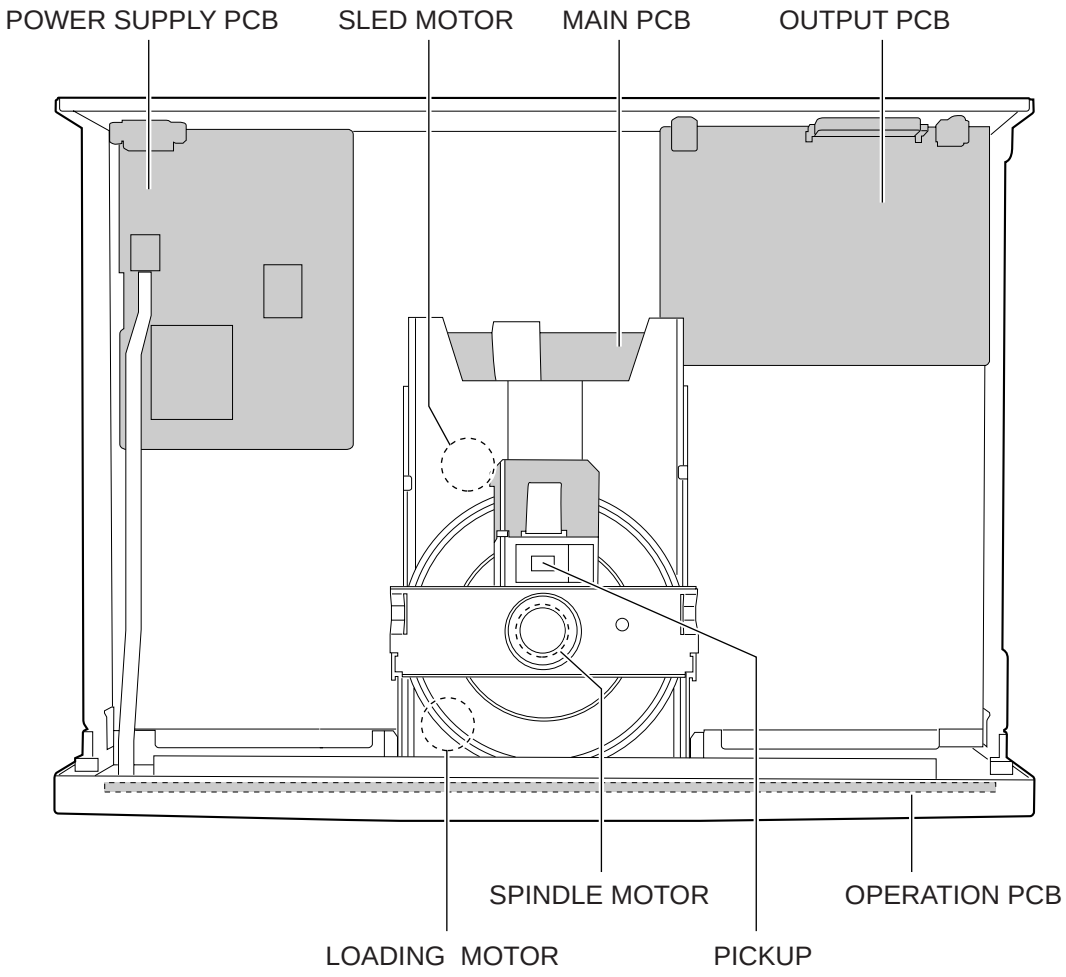


Fig. 6-1 Top view (DV4000)

7. REPLACEMENT OF PRINCIPAL COMPONENTS

7-1. Removal of the TRAVERSE MECHA.

7-1-1. Removal of the MECHANISM BLOCK

1) Turn the unit's power on and press the "EJECT" button to eject the DISC TRAY.
2) Disconnect the power cord and remove the DISC CLAMPER BLOCK.
3) Completely remove the DISC TRAY by pulling it outwards while pulling up both of the stopper tabs alternately.

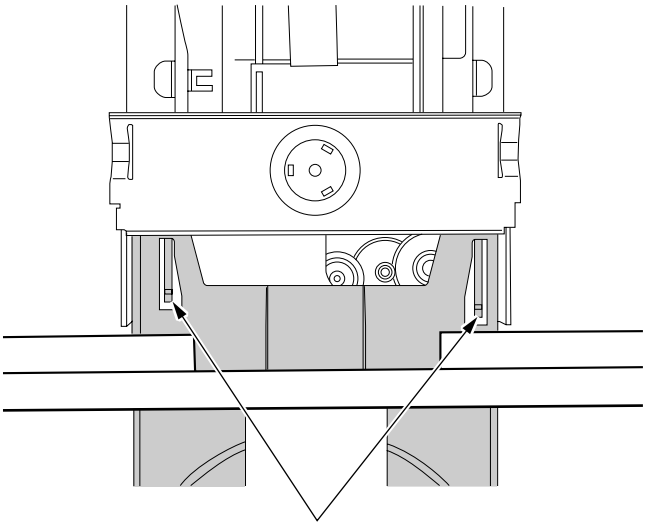


Fig. 7-1

4) Disconnect the two flat cables from the P803 connectors and one flat cable from the P808 connector on the MAIN PCB.
5) Disconnect the P807 connector on the MAIN PCB.
6) Remove the four a retaining screws and remove the MECHANISM BLOCK from the chassis.

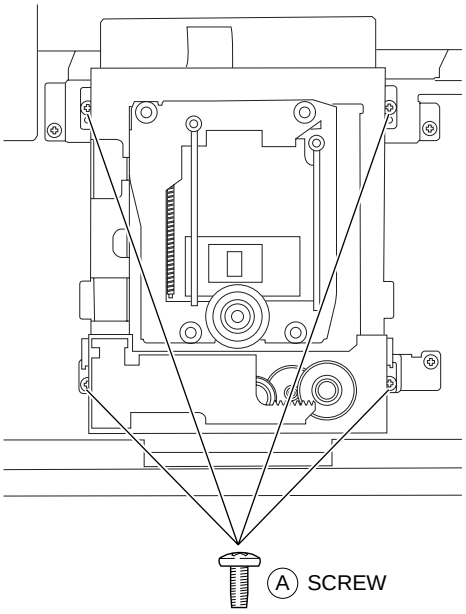


Fig. 7-2

7-1-2. Removal of the TRAVERSE MECHA.

1) Remove the four b screws on the MAIN PCB and then disconnect the P800 connector on the MAIN PCB.

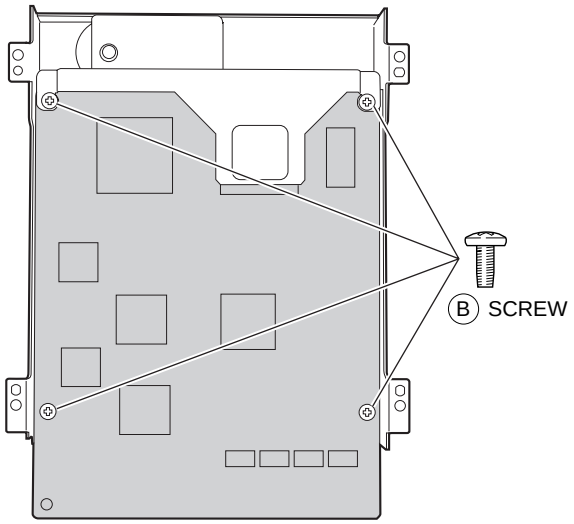


Fig. 7-3

2) Short the laser diode protection circuit on the PICK UP BLOCK's flexible cable with solder as shown.

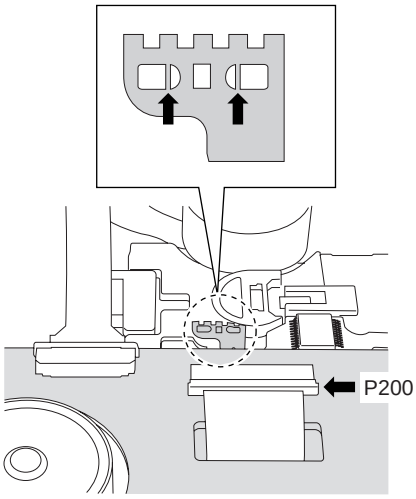


Fig. 7-4

Caution

To protect the laser diode from damage caused by high voltage static electricity, a laser diode protection circuit has to be shorted before disconnecting the flexible cable (P200 connector on the MECHANISM PCB). It is recommended that you put solder on the top of the soldering iron as shown in Fig. 3-5 then short the circuit at once. When you replace the TRAVERSE MECHA., be sure to connect the P200 connector before removing the solder at the shorted parts.

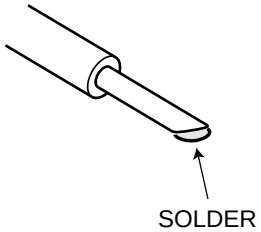


Fig. 7-5

3) Carefully disconnect the two connectors (P500, P600) and the two flat cables (P200, P300) on the MECHANISM PCB.

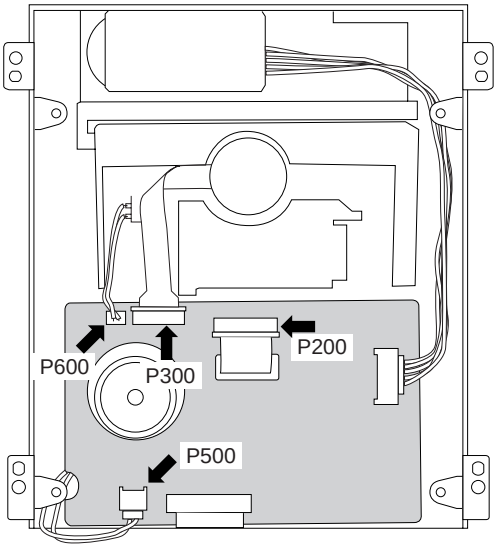


Fig. 7-6

4) Using tweezers, release the four retaining HOOKs of the TRAVERSE MECHA. from the rubber insulators being careful not to damage the rubber insulators.

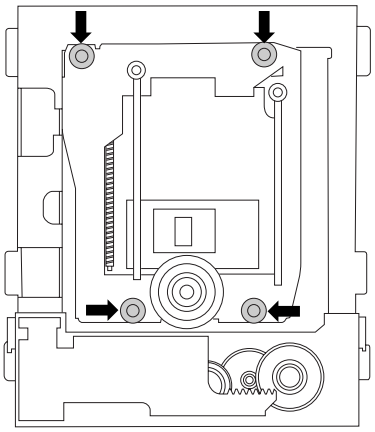


Fig. 7-7

5) Remove the TRAVERSE MECHA. from the MECHANISM BLOCK.
6) Reassemble in the reverse order for installation. Never remove the solder on the flexible cable before connecting the P200 connector on the MECHANISM PCB.

7-2. Replacement of the SPINDLE MOTOR

* Because the SPINDLE MOTOR position is very critical, jitter adjustment should be performed after replacement.

1) Disconnect the P300 connector on the MECHANISM PCB.
2) Insert a Philips type screw driver into the hole on the TURN TABLE of the SPINDLE MOTOR and remove the two screws.

7-3. Replacement of the PICK UP BLOCK

* Replacement of the PICK UP BLOCK itself is not recommended because its azimuth adjustment is very critical and requires a special jig. If PICK UP BLOCK replacement is necessary, replace with an entire TRAVERSE MECHANISM only.

8. SERVICE MODE

8-1 OPERATION

8-1-1. Main Microprocessor (IC600 : MB90574)
Functions which operated by main microprocessor are follows.

- Control of following IC's.
  AV decoder, DEM/ECC, VIDEO encoder, CD-DSP, AUDIO-DAC, PRE-AMP, READ-CHANNEL, SERVO
- Mechanism control
- DVD rate control
- OSD control
- DISC detect, Focus/Tracking alignment
- Data transmission between OPE microprocessor

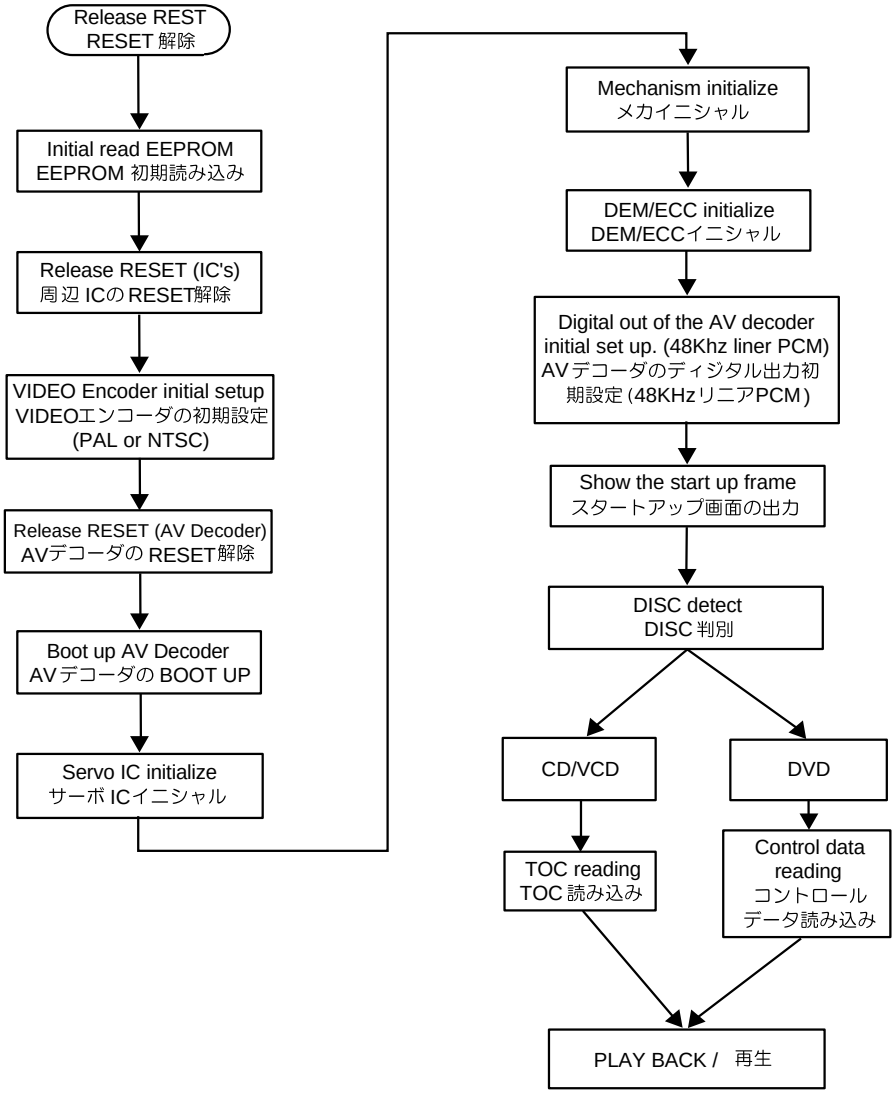
Process from POWER ON (RESET RELEASE) till PLAY BACK are described in the chart below.

8-1. オペレーション

8-1-1. MAIN マイコン (IC600:MB90574)
NAIN マイコンの主な処理内容は次の通りです。

- 周辺 IC の制御
  AV デコーダ，DEM/ECC，VIDEO エンコーダ，CD-DSP，AUDIO-DAC，PRE-AMP，READ-CHANNEL，SERVO
- メカコントロール
- DVD レート制御
- OSD 制御
- DISC 判別、フォーカス / トラッキング調整
- OPE マイコンとデータ転送

この MAIN マイコンの電源投入後　RESET が解除してから再生までの動作をフローチャートにて示します。



8-1-2. Output Control Microprocessor (IC700:M38022)

Main operation features of this microprocessor is as follows.

- Power supply control : Power efficiency switching.
  - 3.3V line ON/OFF
  - 5.0V line ON/OFF
  - 9.0V line ON/OFF
- Out put selection of the OUTPUT PCB.

VIDEO output stage control
- 21PIN SCART output signal selection
- 21PIN SCART control signal selection (TV/DVD, SQUEEZE, RGB)
- S-Video out S1 control

AUDIO output control
- Output MUTE control
- Feedback to the MAIN microprocessor

- OPERATION PCB
  - Operation Button key scan
  - Remote control code reading
  - FLD indication
  - LED indication
- Communication between MAIN microprocessor
  - Command transmission (by user controlable)
  - Data receiving for FLD/LED indication

8-2. TEST MODE

＜How to set up the TEST MODE＞

1. Remove any Disc from the tray, and turn OFF the mains power.
2. Turn ON the mains power while depress the "■" (STOP) and "❙❙" (PAUSE) buttons together. Do not release buttons till FLD shows follows.

8-1-2. OUTPUT CONTROL マイコン (IC700: M38022)

OUTPUT CONTROL マイコンの主な処理内容は次の通りです。

- 電源制御 ：電源効率切り替え
  - 3.3V 系の ON/OFF
  - 5.0V 系の ON/OFF
  - 9.0V 系の ON/OFF
- OUTPUT 基板の出力切り替え制御

VIDEO 出力段制御
- 21PIN SCART 出力信号切り替え
- 21PIN SCART 制御線出力切り替え (TV/DVD, SQUEEZE, RGB)
- S 端子出力 S1 制御出力切り替え

AUDIO 出力制御
- 出力 MUTE 制御
- MAIN マイコンに情報供給

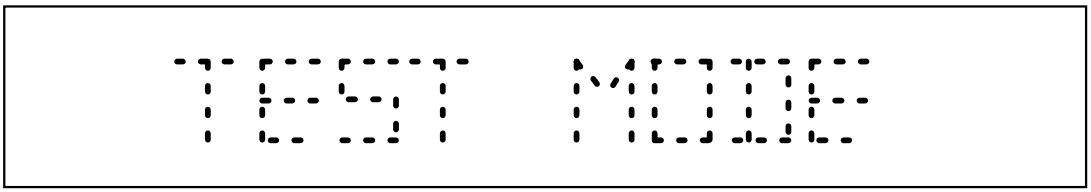
- OPERATION 基板
  - 本体タクトキーの読み込み
  - リモコンキーの読み込み
  - FLD 表示
  - LED 表示
- MAIN マイコンとの情報交換
  - タクトキー /リモコンキー入力の伝達
  - FLD/LED に表示させる為のデータの受信

8-2. テストモード

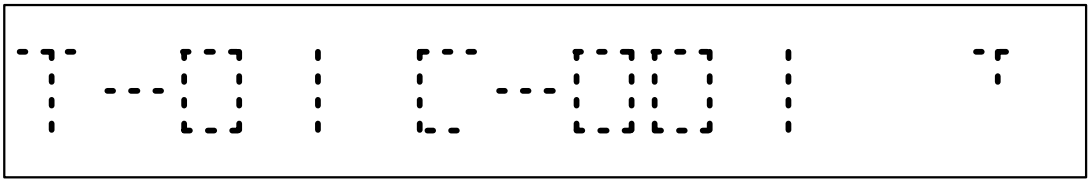
＜テストモード設定方法＞

1. トレイにディスクがないことを確認し、電源を切ります。
2. フロントパネルの"■"(STOP)と"❙❙"(PAUSE)ボタンを同時に押しながら電源を入れます。この時ボタンは5 秒以上押し続けて下さい。フロントパネルの FLD 表示は次のようになります。

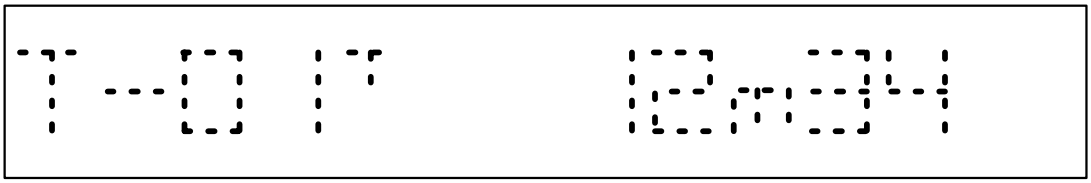
In case of no DISC / ディスク無しの場合



While DVD Video playback / DVD ディスク再生時

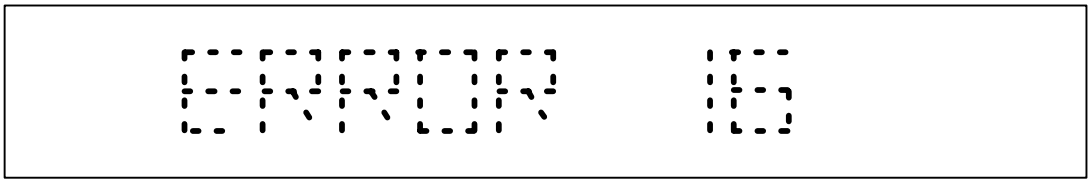


While VCD and CD Video playback / VCD/CD ディスク再生時



In case of some fault has happened. (caused with communications between CPU: IC600 and related IC's) Some Error code is shown on the FLD. Each Error codes are described on the table 8-1.

この時、シスコン内で動作不良が発生した場合 (CPU : IC600 が各接続先 IC とのアクセスに異常があった場合)、フロントパネルの FLD上にエラーコードを表示します。そのコード内容は 、表 8-1 を参 照下さい。



ERORR CODE	ERORR DESCRIPTION / 内容	DISC
16	No access with CD-DSP (IC490). CD-DSP(IC490)へのアクセスが出来ない	D/V/C
17	Sledge motor is not working. スレッドモータが駆動しない	D/V/C
18	Tracking ON error. トラッキングがオン出来ない	D/V/C
19	Focus ON error. フォーカスがオン出来ない	D/V/C
20	Sub code read error. (CD/VCD) CD, VCD のサブコードが読めない	V/C
32	No access with Servo-DSC (IC300). サーボ DSC(IC300)へのアクセスが出来ない	D/V/C
33	No access with DEM/ECC (IC500). DEM/ECC(IC500)のアクセスが出来ない	D/V/C
34	No access with A/V decoder (IC700). A/V デコーダ (IC700)とのアクセスが出来ない	D/V/C
35	No access with system ROM (IC602). システム ROM(IC602) とのアクセスが出来ない	D/V/C
36	No access with EEPROM(IC603). EEPROM(IC603)とのアクセスが出来ない	D/V/C
37	No access with A/V encoder (IC850). A/V エンコーダ (IC850) とのアクセスが出来ない	D/V/C
38	No access with Read channel (IC200). リードチャンネル(IC200)へのアクセスが出来ない	D/V/C

表 8-1. / Table 8-1.

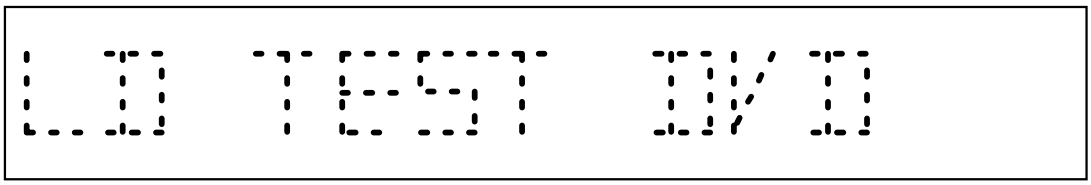
D : DVD, V : Video CD, C : CD

3. Press the "■" (STOP) button while close the disctray without any disc. Then all segments of the FLD right ON.

3. ディスクが入れずにトレイを閉じた状態からフロントパネルの"■" (STOP) ボタンを押すとフロントパネルの FLDが全点灯状態となり、FLD 表示の確認が行えます。

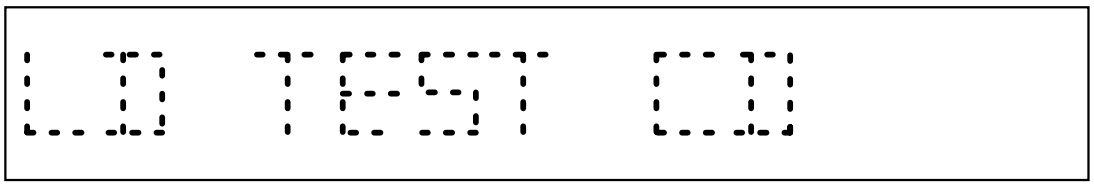
4. Press the "■" (STOP) button again. The FLD indication shows below. Then the laser diode for DVD will right ON.

4. 再度、"■" (STOP)ボタンを押すと下図の表示がされ、DVD のレーザーダイオードのみの点灯となりDVD のレーザーパワーの確認が行えます。



5. Press the "■" (STOP) button again. The FLD indication shows below. Then the laser diode for CD will right ON.

5. 更に、"■" (STOP)ボタンを押すと下図の表示がされ、CD のレーザーダイオードのみの点灯となりCD のレーザーパワーの確認が行えます。



6. Press the "■" (STOP) button again. Then the TEST MODE back to the first step.

6. フロントパネルの"■" (STOP)ボタンを押すことによりテストモードの初期状態に戻ります。

7. Press the "⏭" (Forward Search) button while close the disc tray without any disc. Then the sledge motor will move.

7. トレイにディスクが入っていない状態で、フロントパネルの"⏭" (Forward Search)ボタンを押すことにより スレッドモータの動作確認が出来ます。

8. Turn OFF the mains power. Then service mode will be released.

8. 電源を切りテストモードを解除します。

8-3. EEPROM initialize

The memory device (EEPROM) which used in this DVD player is programmed each functions by products regions at factory. When that EEPROM (MAIN P.C. Board IC602 : M24C16-MN6T) or MAIN P.C. Board has exchanged, EEPROM initialization is necessary. If that the initialization will not be done correctly, the product might not be work correctly.
The initialize procedure are as follows.

1. Remove any Disc from the tray, and turn OFF the mains power.
   Turn ON the mains power while depress the " ■ " (STOP) and " ⏭ " (Forward skip) buttons together. Do not release buttons till FLD shows " **A-01 D-XX** ". (XX = is depended on EEPROM status)
   REMARK : In case of some failure with the product. The ERROR code will be shown on the FLD and above indication will not be shown. Then other confirmation or repair is necessary before this EEPROM initialization.
2. The address shown as " **A-01 D-XX** " is can be changed by pressing " ⏭ " and " ⏮ " buttons on the front panel or remote controller. Which can be changed to " 0 " till " 07 ". (Address " 00 " is not available.)
   " ⏭ " (Forward skip) button : Address UP
   " ⏮ " (Reverse skip) button : Address DOWN
3. The DATA shown as " **XX** " is can be changed by pressing " **II** " and " ■ " buttons on the front panel or remote controller. Set up data are shown in following table.
   " **II** " (PAUSE) button : Data UP
   " ■ " (STOP) button : Data DOWN
4. Press the " **DIMMER** " button, then address data will be memorize.
5. Memorize data by each address (from " 01 " to " 07 "), as order 2., 3. And 4. processes.
6. Turn OFF the mains switch. (This procedure is necessary for next procedure.)

8-3. EEPROMの初期設定

本機に搭載しているメモリーディバイス EEPROM には機能・仕分けの設定情報が出荷時に記憶されています。従って、この EEPROM (MAIN P.C. Board 内IC602 : M24C16-MN6T) または MAIN P.C. Board を交換した際は初期設定が必ず必要となります。設定していない場合正常な動作をしないことがありますのでご注意下さい。次に設定手順を示します。

1. トレイにディスクがないことを確認して電源を切ります。
   フロントパネルの " ■ " (STOP) と " ⏭ " (Forward skip) ボタンを同時に押しながら電源を入れます。このときボタンは5秒以上押し続けて下さい。
   フロントパネルの FLD 表示が " A-01 D-yz " となります。表示の " yz " は、EEPROM の状態により異なっています。
   注：この時、シスコン内で動作不良が発生した場合、8-1. テストモードの項で説明したエラーコードがフロントパネルの FLD 上に表示され上記初期設定表示はしません。問題を解決してから初期設定を行って下さい。
2. フロントパネルまたはリモートコントロールの " ⏭ " と " ⏮ " ボタンにて " A " (Address) のナンバーを " 01 " (" 07 " 迄) に設定します。但し、Address の " 00 " 設定は出来ません。
   " ⏭ " (Forward skip) ボタン：Address 番号がひとつ上がります。
   " ⏮ " (Reverse skip) ボタン：Address 番号がひとつ下がります。
3. フロントパネルまたはリモートコントロール " ❙❙ " または " ■ " ボタンにて " D " (Data) 番号 " yz " を下表に従って設定します。
   " ❙❙ " (PAUSE) ボタン ：Data 番号がひとつ上がります。
   " ■ " (STOP) ボタン ：Data 番号がひとつ下がります。
4. 上記設定項目 2 と 4 項の各 Address 設定時フロントパネルの " DIMMER " ボタンを押して記憶させて下さい。
5. Address 番号が " 07 " まで上記設定項目 2, 3, 4 を行って下さい。
6. 電源を切ります。次の項目に進む前に必ず一旦電源を切って下さい。

Address	Data				
	U1B	F1N	N1B	S1G	K1G
01	E1	E9	F7	E7	E7
02	30	30	70	30	30
03	00	08	00	00	06
04	53	50	00	00	00
05	55	4A	00	00	00
06	C5	C5	C5	C5	C5
07	A9	A9	A9	A9	A9

7. Turn ON the mains power while depress the “ **DIMMER** “ and “ ⏮ “ (Reverse skip) buttons together. Then the FLD shows **“ -- -- -- -- “**.
8. Send the commands “ **1999** “ by the remote controller. (Press buttons “ **1** “, “ **9** “, “ **9** “ and “ **9** “.) Then the FLD shows “ **A-00 D-XX** “. (XX = is depended on EEPROM status)
9. Send the commands “ **D-XX** “ (Data) as your product version shows in following table by the remote controller.

7. フロントパネルの " DIMMER " と " ⏮ " (Reverse skip) ボタンを同時に押しながら電源を入れて下さい。
フロントパネルの FLD 表示が " -- -- -- -- " となります。
8. リモートコントロールにて 4 桁の番号 " 1999 " を入力します。
フロントパネルの FLD 表示が " A-00 D-yz " となります。
このとき " yz " の番号は EEPROM の状態によって異なります。
9. リモートコントロールにて " D " (Data) 番号に次の表の 2 桁の数字を入力します。

	U1B	F1N	N1B	S1G	K1G
Data	01	02	02	04	20

10. Press the “ **ENTER** “ button, then address data will be memorize and the FLD shows a data number which you stored. (EX: “ **D-02** “)
11. Turn OFF the mains switch, then EEPROM initialization mode will be release.

10. リモートコントロール の " ENTER " ボタンを押すことによってデータが記憶されます。
また、フロントパネルの FLD 表示が " D-02 " 等の上表で入力した番号が表示されます。
11. 電源を切りテストモードを解除します。

9. ELECTRICAL ADJUSTMENT

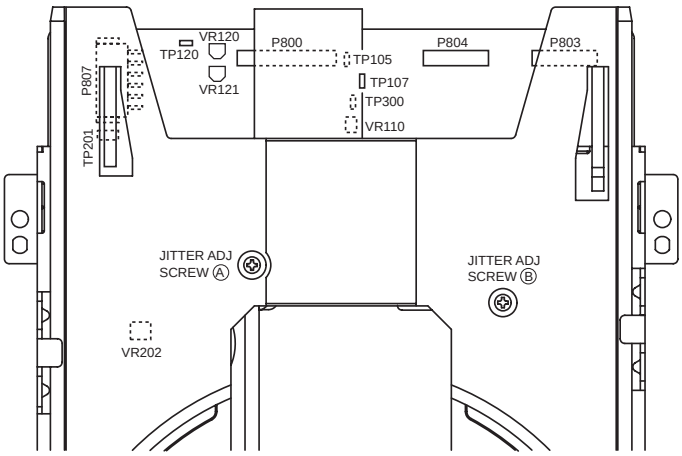


Fig. 9-1

9-1. DVD JITTER ADJUSTMENT

1. Stick the provided small round sticker (0.1 mm thickness) at the innermost position of a DVD disc as shown and make a swayed DVD disc.

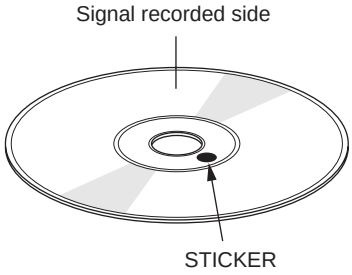


Fig. 9-2

2. Play back the swayed DVD disc and press the F.F button repeatedly until the pickup block reaches the outermost position of its movable range. Next, press the PAUSE button.
3. Set the oscilloscope to the DC input mode and connect it to the TP201 (HOT) and the TP102 (D.GND) on the MAIN PCB.
4. Adjust the a screw and b screw alternately so that the AC and DC level of the waveform is minimum. (DC level should be less than 1.8 V, AC component should be minimum.)

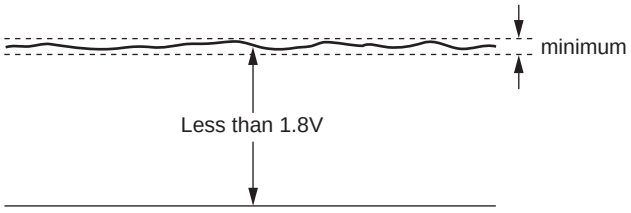


Fig. 9-3

NOTE: If the SPINDLE MOTOR is replaced, this jitter adjustment should be performed for proper performance.

9-2. SLICE LEVEL ADJUSTMENT

1. Play back an ordinary DVD disc (single side, one layer) and press the F.F button repeatedly until the pickup block reaches almost the center position of its movable range.
2. Set the oscilloscope to the DC input mode and connect it to the TP201 (HOT) and the TP102 (D.GND) on the MAIN PCB.
3. Adjust the VR202 so that the DC level is minimum. (The DC level should be less than 1.8 V)

9-3. CD TRACKING BALANCE

1. Set the VR110 at its center position prior to the adjustment.
2. Connect an oscilloscope to the TP150 (TE) on the MAIN PCB.
3. Play back an ordinary CD-disc and then set it to the PAUSE mode. If the play mode does not be engage, turn the VR110 at ±15 degrees. If the play mode does still not be engage even when the VR110 is turned at ±15 degrees, turn the VR110 at ± 30 degrees and try it again.
4. Observe the waveform and adjust it so that the level A of the waveform is the same as level B.

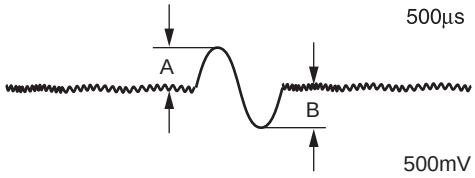


Fig. 9-4

9-4. AS ADJUSTMENT

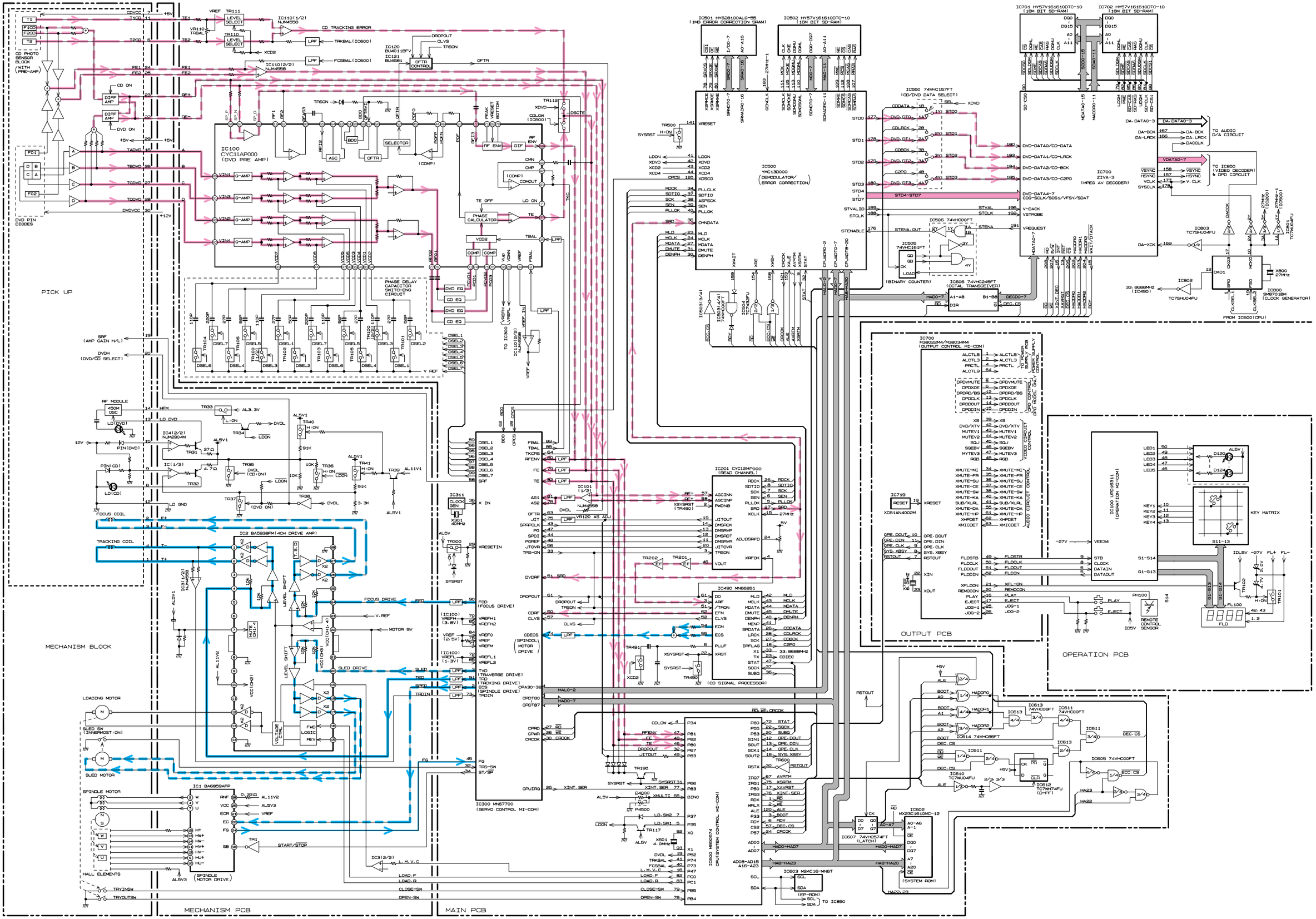
Adjustment point : VR120

Test point : TP120

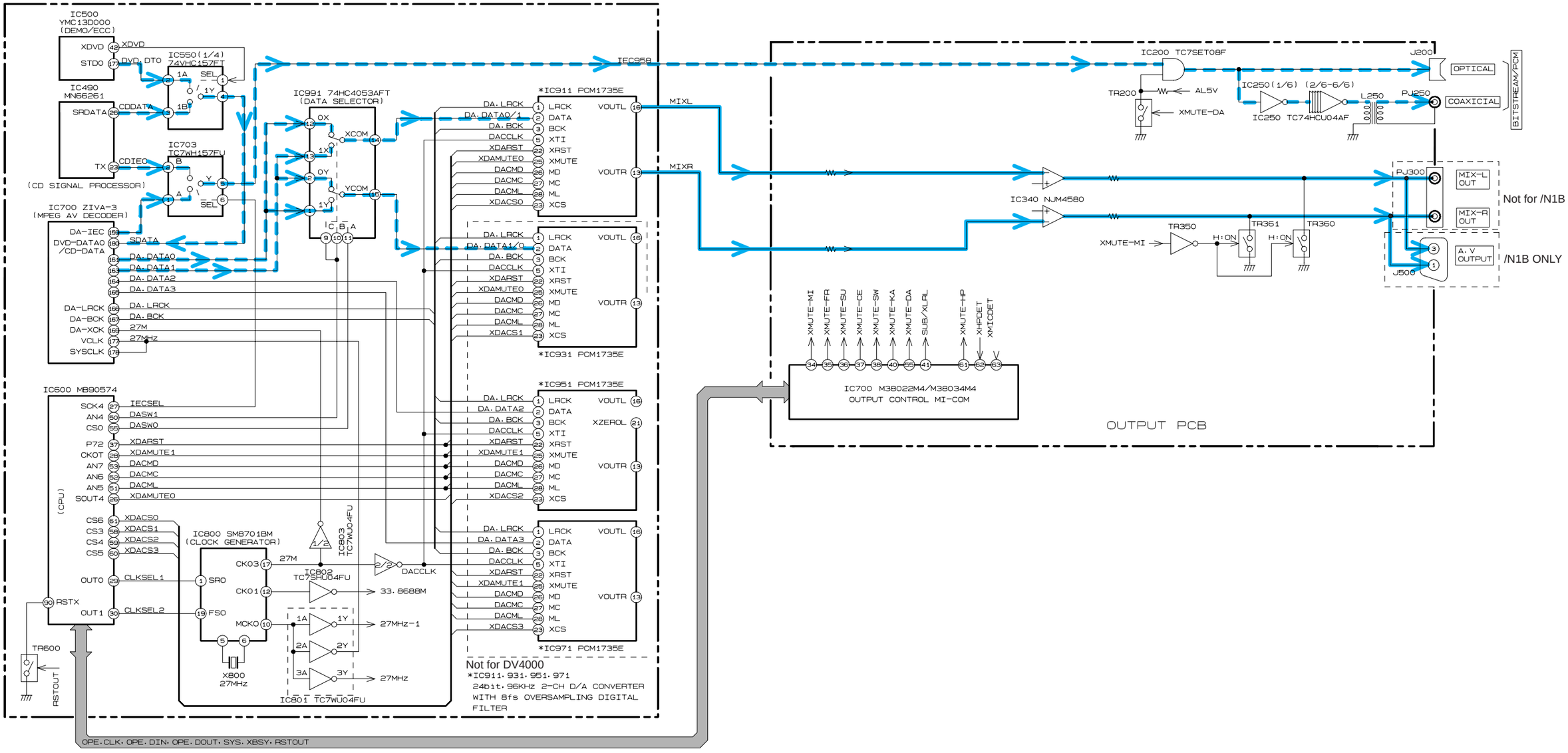
1. Turn ON the mains power while depress the " ■ " (STOP) and " **II** " (PAUSE) buttons together. (TEST MODE)
2. Connect the multi meter to test point **TP120**. Set the multi meter in DC voltage mode.
3. Press the " ■ " (STOP) button several times till the FLD shows " **LD TEST CD** ". Measure the voltage at that status.
4. Press the " ■ " (STOP) button several times till the FLD shows " **LD TEST DVD** ".
5. Adjust the voltage at that status 50mV lower than " **LD TEST CD** " status by the trim resister **VR120**.

10. BLOCK DIAGRAM

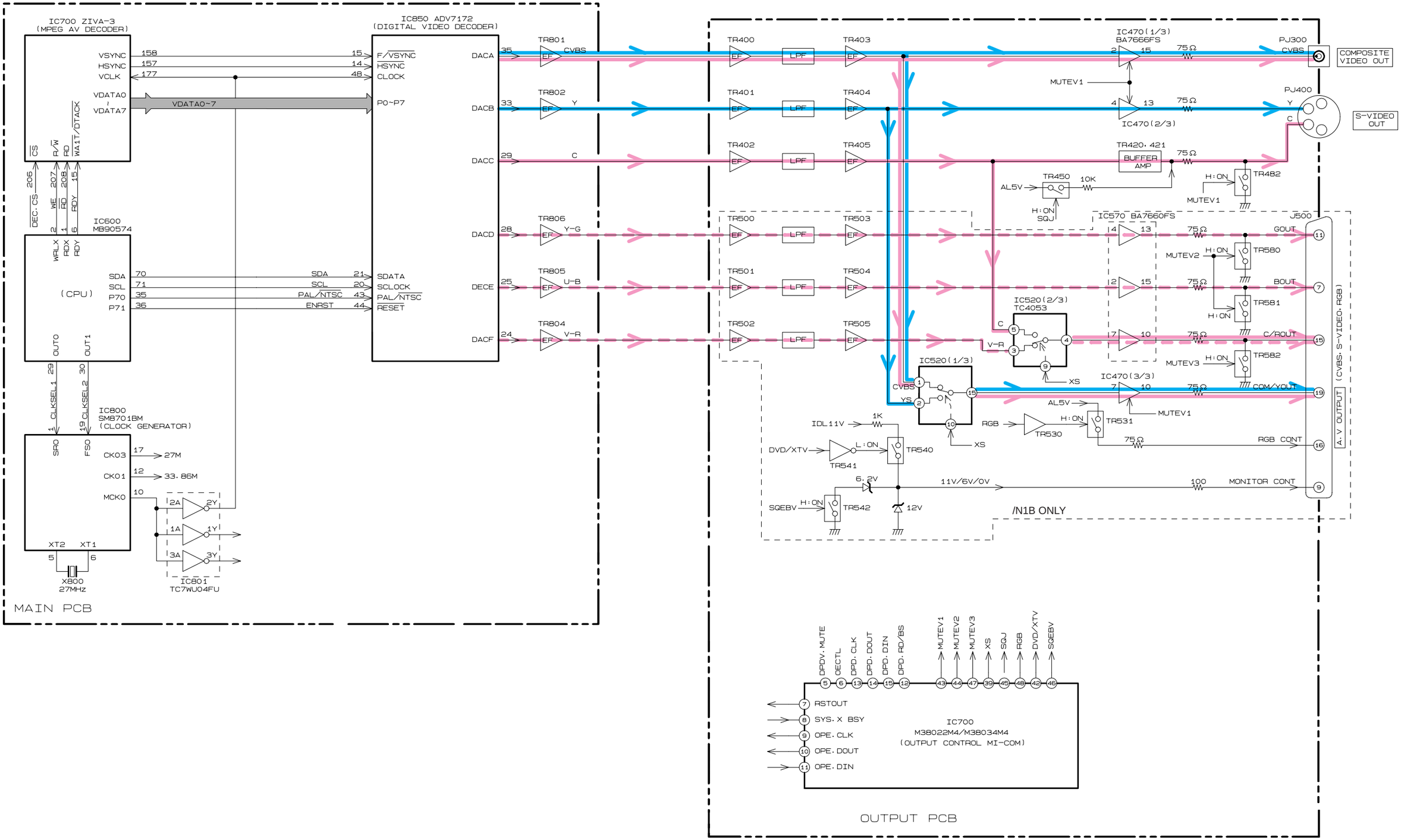
RF / SERVO / SYSCON



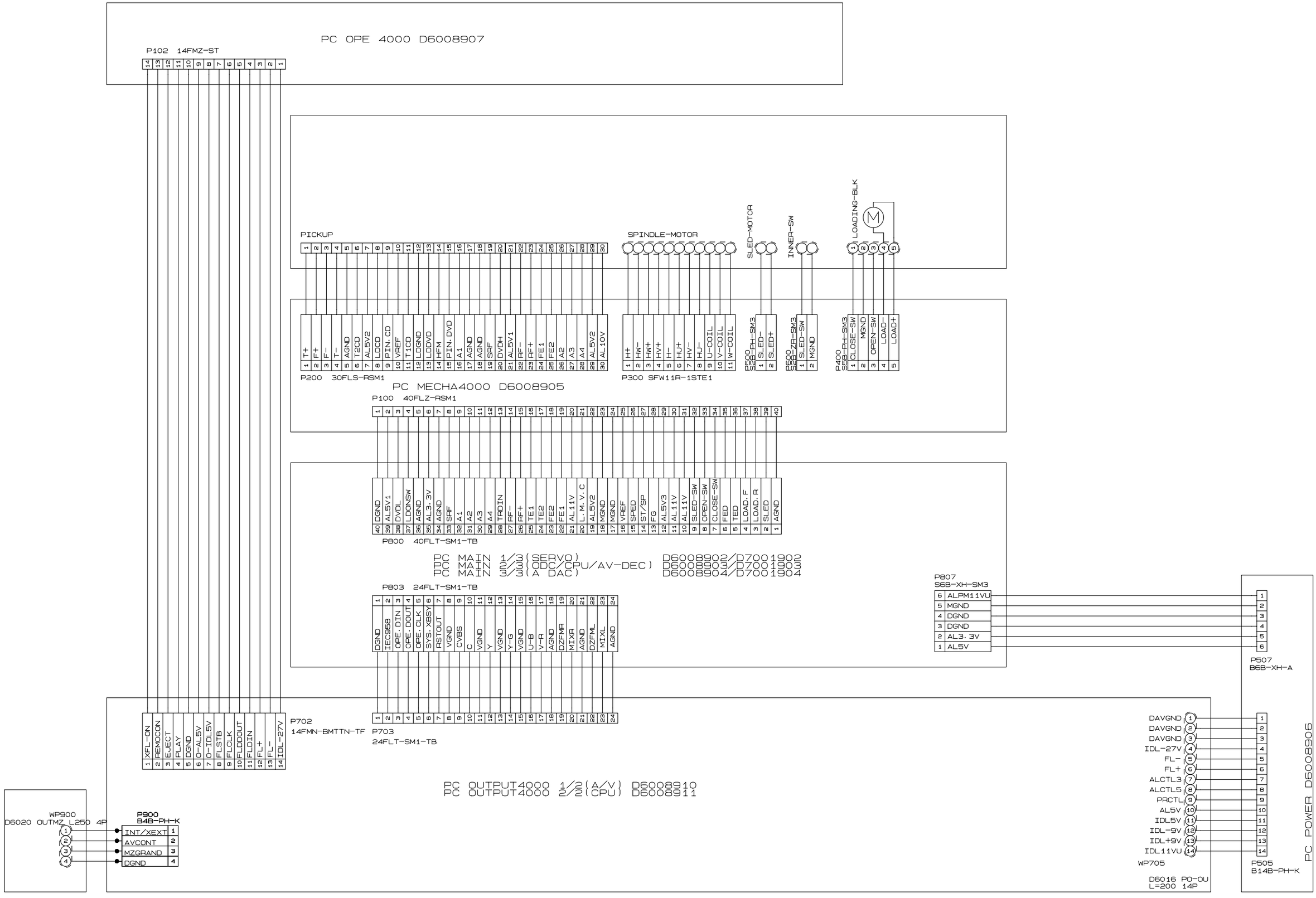
AUDIO


IC500
YMC13D000
(DEMO/ECC)
XDVD
STDO
DVD. DTO
IC550(1/4)
74VHC157FT
IC490
MN66261
SRDATA
CDDATA
TX
CDIEO
IC703
TC7WH157FU
(CD SIGNAL PROCESSOR)
IC700 ZIVA-3
(MPEG AV DECODER)
DA-IEC
DVD-DATA0
/CD-DATA
SDATA
DA. DATA0
DA. DATA1
DA. DATA2
DA. DATA3
DA-LRCK
DA-BCK
DA-XCK
VCLK
SYSCLK
27M
27MHz
IC991 74HC4053AFT
(DATA SELECTOR)
IEC958
*IC911 PCM1735E
*IC931 PCM1735E
*IC951 PCM1735E
*IC971 PCM1735E
LRCK
DATA
BCK
XTI
XRST
XMUTE
MD
MC
ML
XCS
VOUTL
VOUTR
XZEROL
MIXL
MIXR
IC600 MB90574
(CPU)
IECSEL
DASW1
DASW0
XDARST
XDAMUTE1
DACMD
DACMC
DACML
XDAMUTE0
XDACS0
XDACS1
XDACS2
XDACS3
CLKSEL1
CLKSEL2
RSTX
IC800 SM8701BM
(CLOCK GENERATOR)
IC802
TC7SHU04FU
IC803
TC7WU04FU
IC801 TC7WU04FU
33.8688M
27MHz-1
27MHz
X800
27MHz
TR600
RSTOUT
IC700 M38022M4/M38034M4
OUTPUT CONTROL MI-COM
XMUTE-MI
XMUTE-FR
XMUTE-SU
XMUTE-CE
XMUTE-SW
XMUTE-KA
XMUTE-DA
SUB/XLRL
XMUTE-HP
XHPDET
XMICDET
IC200 TC7SET08F
TR200
AL5V
XMUTE-DA
IC250(1/6) (2/6~6/6)
IC250 TC74HCU04AF
L250
PJ250
J200
OPTICAL
COAXICIAL
BITSTREAM/PCM
IC340 NJM4580
TR350
TR361
TR360
H:ON
PJ300
MIX-L OUT
MIX-R OUT
J500
A.V OUTPUT
Not for /N1B
/N1B ONLY
OUTPUT PCB
Not for DV4000
*IC911.931.951.971
24bit.96KHz 2-CH D/A CONVERTER
WITH 8fs OVERSAMPLING DIGITAL
FILTER
OPE.CLK.OPE.DIN.OPE.DOUT.SYS.XBSY.RSTOUT

VIDEO

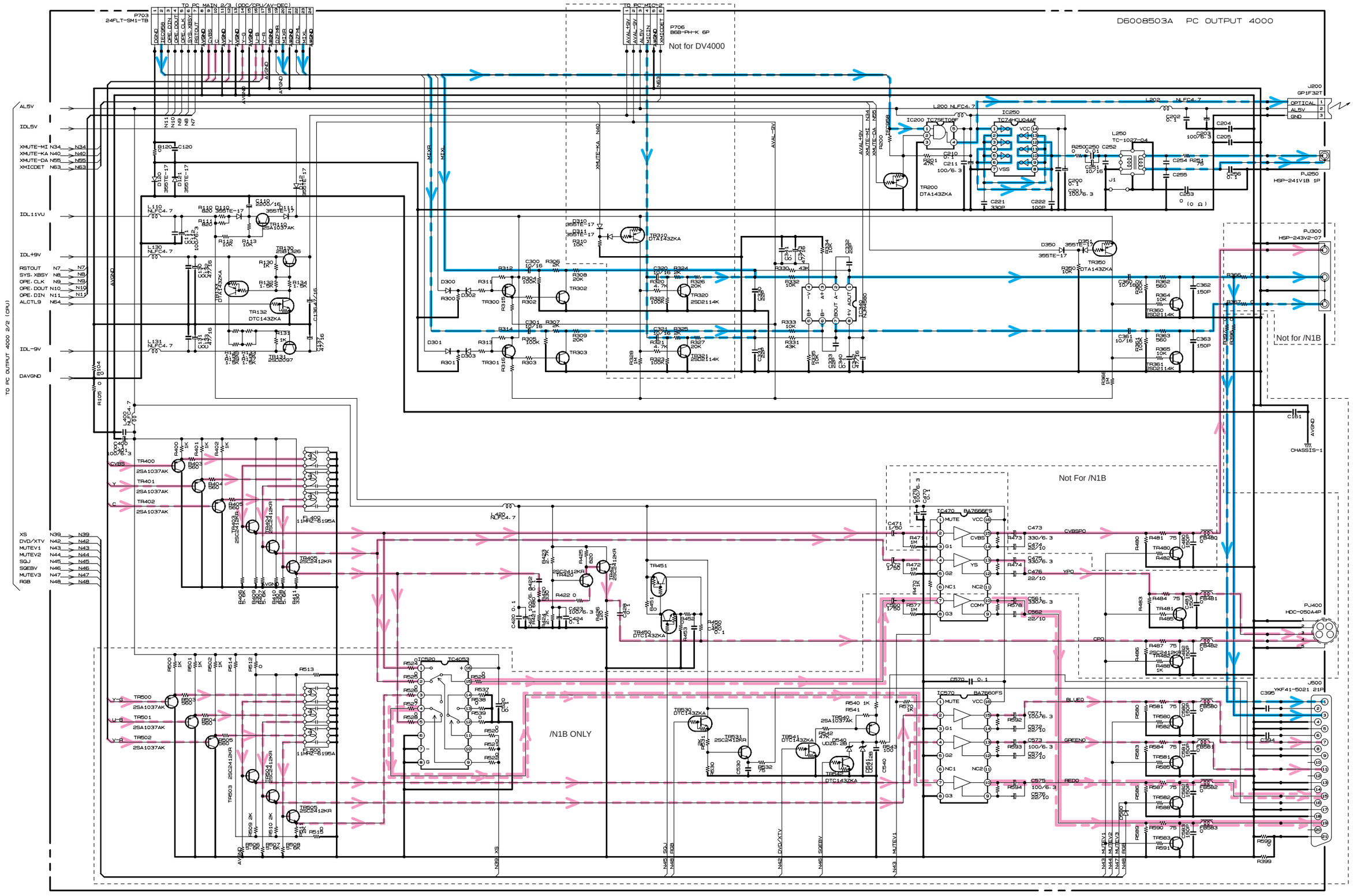

IC700 ZIVA-3
(MPEG AV DECODER)
VSYNC
HSYNC
VCLK
VDATA0 ~ VDATA7
VDATA0~7
CS
R/W
RD
WAIT/DTACK
DEC. CS
WE
RD
RDY
IC600
MB90574
WRLX
RDX
RDY
(CPU)
SDA
SCL
P70
P71
OUT0
OUT1
CLKSEL1
CLKSEL2
IC800
SM8701BM
(CLOCK GENERATOR)
SRO
FSO
CKO3
CKO1
MCKO
27M
33.86M
XT2
XT1
X800
27MHz
IC801
TC7WU04FU
IC850 ADV7172
(DIGITAL VIDEO DECODER)
F/VSYNC
HSYNC
CLOCK
P0~P7
SDATA
SCLOCK
PAL/NTSC
RESET
DACA
DACB
DACC
DACD
DECE
DACF
TR801
TR802
TR806
TR805
TR804
CVBS
Y
C
Y-G
U-B
V-R
TR400
TR401
TR402
TR403
TR404
TR405
LPF
TR500
TR501
TR502
TR503
TR504
TR505
IC470(1/3)
BA7666FS
IC470(2/3)
IC470(3/3)
PJ300
PJ400
COMPOSITE VIDEO OUT
S-VIDEO OUT
MUTEV1
TR420, 421
BUFFER AMP
TR450
10K
AL5V
H:ON
SQJ
TR482
IC570 BA7660FS
J500
GOUT
BOUT
C/ROUT
COM/YOUT
MUTEV2
MUTEV3
TR580
TR581
TR582
IC520(2/3)
TC4053
IC520(1/3)
XS
YS
IDL11V
1K
DVD/XTV
L:ON
TR540
TR541
TR530
TR531
RGB
RGB CONT
6.2V
11V/6V/0V
100
MONITOR CONT
SQEBV
TR542
12V
/N1B ONLY
A.V OUTPUT (CVBS, S-VIDEO, RGB)
DPDV. MUTE
OECTL
DPD. CLK
DPD. DOUT
DPD. DIN
DPD. RD/BS
MUTEV1
MUTEV2
MUTEV3
XS
SQJ
RGB
DVD/XTV
SQEBV
RSTOUT
SYS. X BSY
OPE. CLK
OPE. DOUT
OPE. DIN
IC700
M38022M4/M38034M4
(OUTPUT CONTROL MI-COM)
MAIN PCB
OUTPUT PCB

11. WIRING DIAGRAM



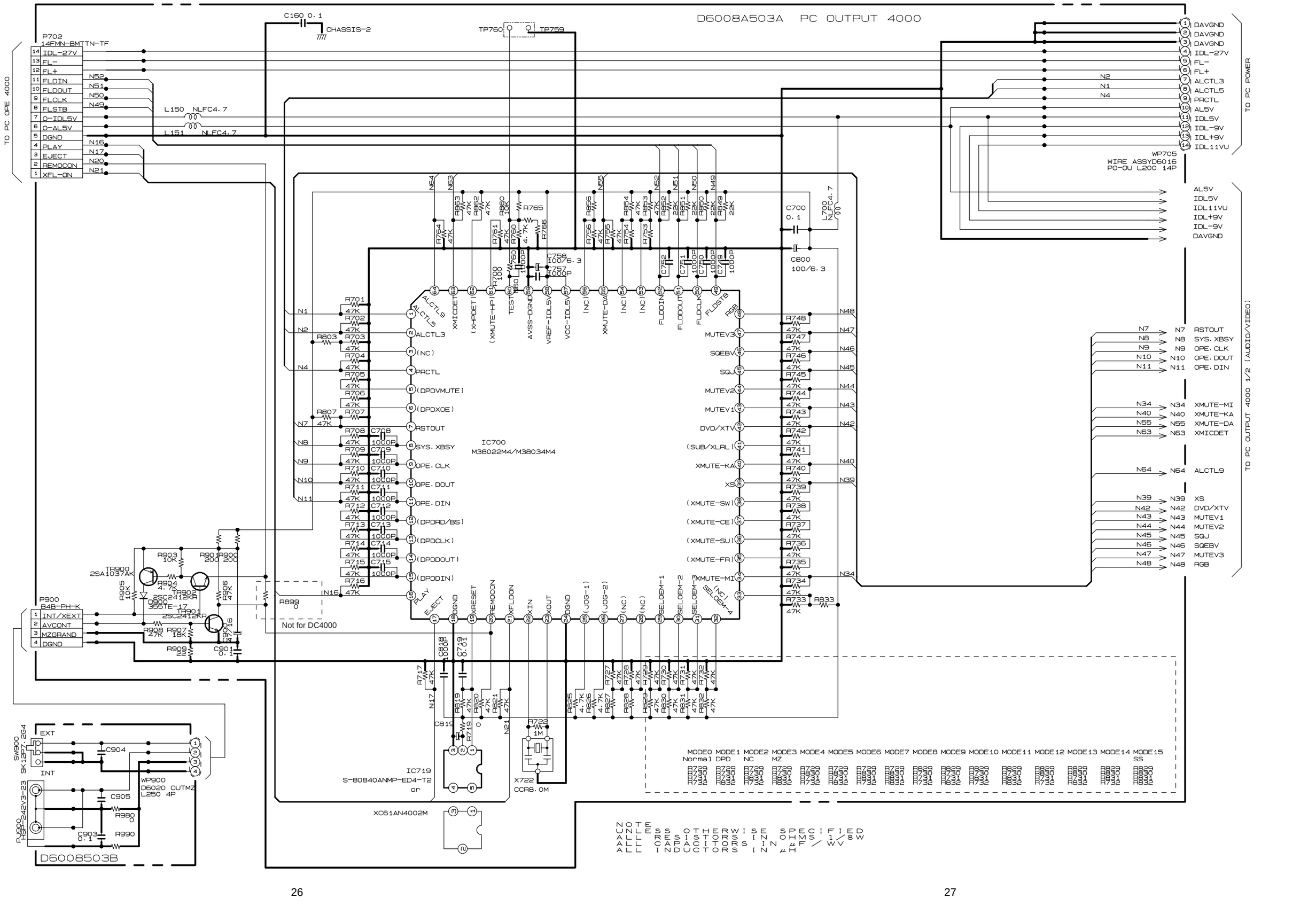
12. SCHEMATIC DIAGRAM AND PARTS LOCATION

OUTPUT-1/2



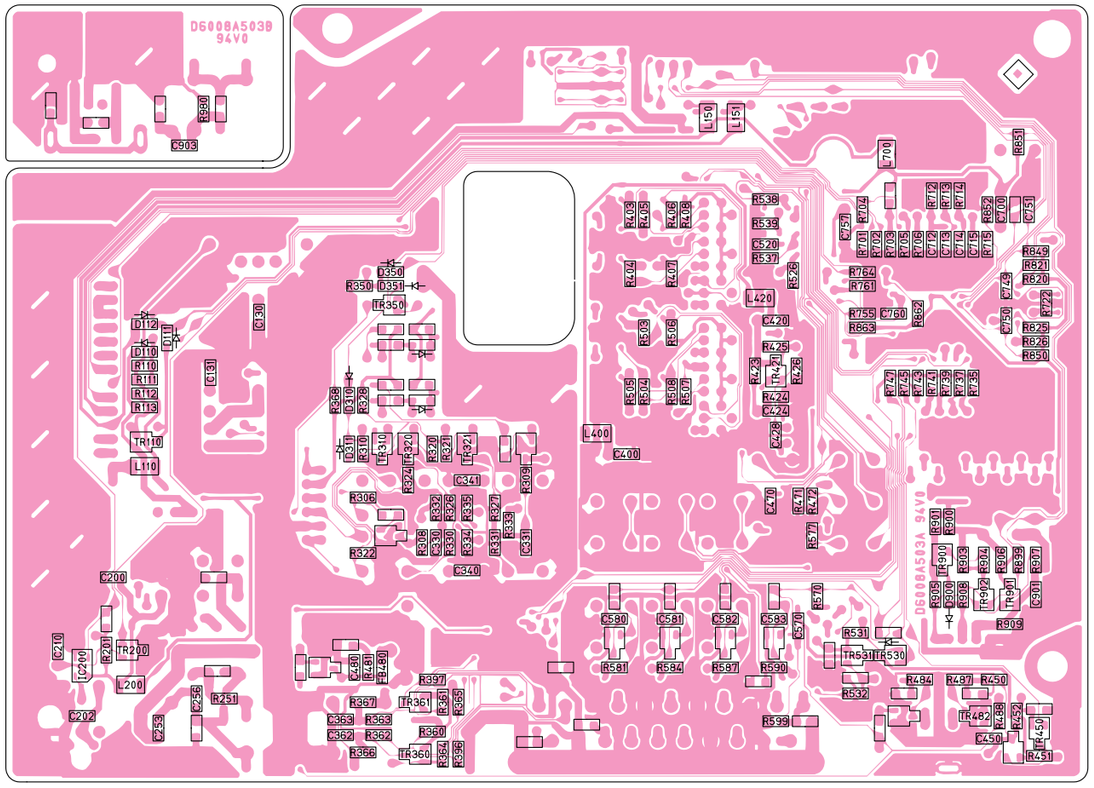
NOTE
ALL RESISTORS ARE IN OHMS UNLESS OTHERWISE SPECIFIED
ALL CAPACITORS ARE IN MICROFARADS UNLESS OTHERWISE SPECIFIED

OUTPUT-2-2


D6008A503A PC OUTPUT 4000
TO PC OPE 4000
P702
14FMN-BMTTN-TF
IDL-27V
FL-
FL+
FLDIN
FLDOUT
FLCLK
FLSTB
O-IDL5V
O-AL5V
DGND
PLAY
EJECT
REMOCON
XFL-ON
C160 0.1
CHASSIS-2
TP760
TP759
L150 NLFC4.7
L151 NLFC4.7
C700 0.1
L700 NLFC4.7
C800 100/6.3
TO PC POWER
DAVGND
IDL-27V
FL-
FL+
ALCTL3
ALCTL5
PRCTL
AL5V
IDL5V
IDL-9V
IDL+9V
IDL11VU
WP705
WIRE ASSYD6016
PO-OU L200 14P
AL5V
IDL5V
IDL11VU
IDL+9V
IDL-9V
DAVGND
IC700
M38022M4/M38034M4
ALCTL9
ALCTL5
XMICDET
(XHPDET)
(XMUTE-HP)
TEST
AVSS-DGND
VREF-IDL5V
VCC-IDL5V
(NC)
XMUTE-DA
FLDDIN
FLDDOUT
FLDCLK
FLDSTB
RGB
MUTEV3
SQEBV
SQJ
MUTEV2
MUTEV1
DVD/XTV
(SUB/XLRL)
XMUTE-KA
XS
(XMUTE-SW)
(XMUTE-CE)
(XMUTE-SU)
(XMUTE-FR)
XMUTE-MI
(NC)
SELOEM-4
SELOEM-3
SELOEM-2
SELOEM-1
(JOG-2)
(JOG-1)
XOUT
XIN
XRESET
XFLDON
(DPDDIN)
(DPDDOUT)
(DPDCLK)
(DPDRD/BS)
OPE. DIN
OPE. DOUT
OPE. CLK
SYS. XBSY
RSTOUT
(DPDXOE)
(DPDVMUTE)
PRCTL
(NC)
ALCTL3
Not for DC4000
P900
B4B-PH-K
INT/XEXT
AVCONT
MZGRAND
DGND
TR900 2SA1037AK
TR902 2SC2412KR
TR901 2SC2412KR
D900 355TE-17
SW900 SK12F27-2G4
EXT
INT
C904
C905
C903 0.1
R980 0
R990
WP900
D6020 OUTMZ
L250 4P
P900 HSP-242V3-23
IC719
S-80840ANMP-ED4-T2
or
XC61AN4002M
X722
CCR8.0M
R723 1M
MODE0 Normal
MODE1 DPD
MODE2 NC
MODE3 MZ
MODE4
MODE5
MODE6
MODE7
MODE8
MODE9
MODE10
MODE11
MODE12
MODE13
MODE14
MODE15 SS
N7 RSTOUT
N8 SYS. XBSY
N9 OPE. CLK
N10 OPE. DOUT
N11 OPE. DIN
N34 XMUTE-MI
N40 XMUTE-KA
N55 XMUTE-DA
N63 XMICDET
N64 ALCTL9
N39 XS
N42 DVD/XTV
N43 MUTEV1
N44 MUTEV2
N45 SQJ
N46 SQEBV
N47 MUTEV3
N48 RGB
TO PC OUTPUT 4000 1/2 (AUDIO/VIDEO)
D6008503B
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W
ALL CAPACITORS IN μF/WV
ALL INDUCTORS IN μH

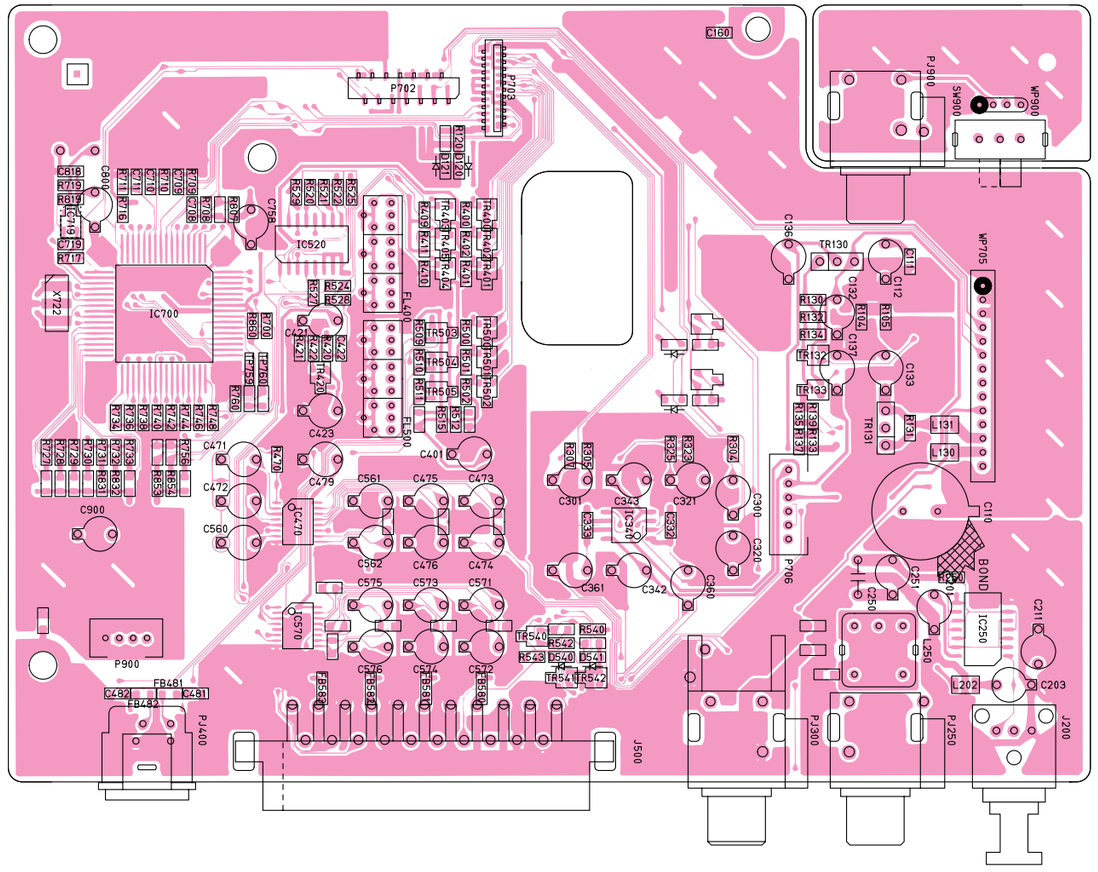
OUTPUT TOP VIEW

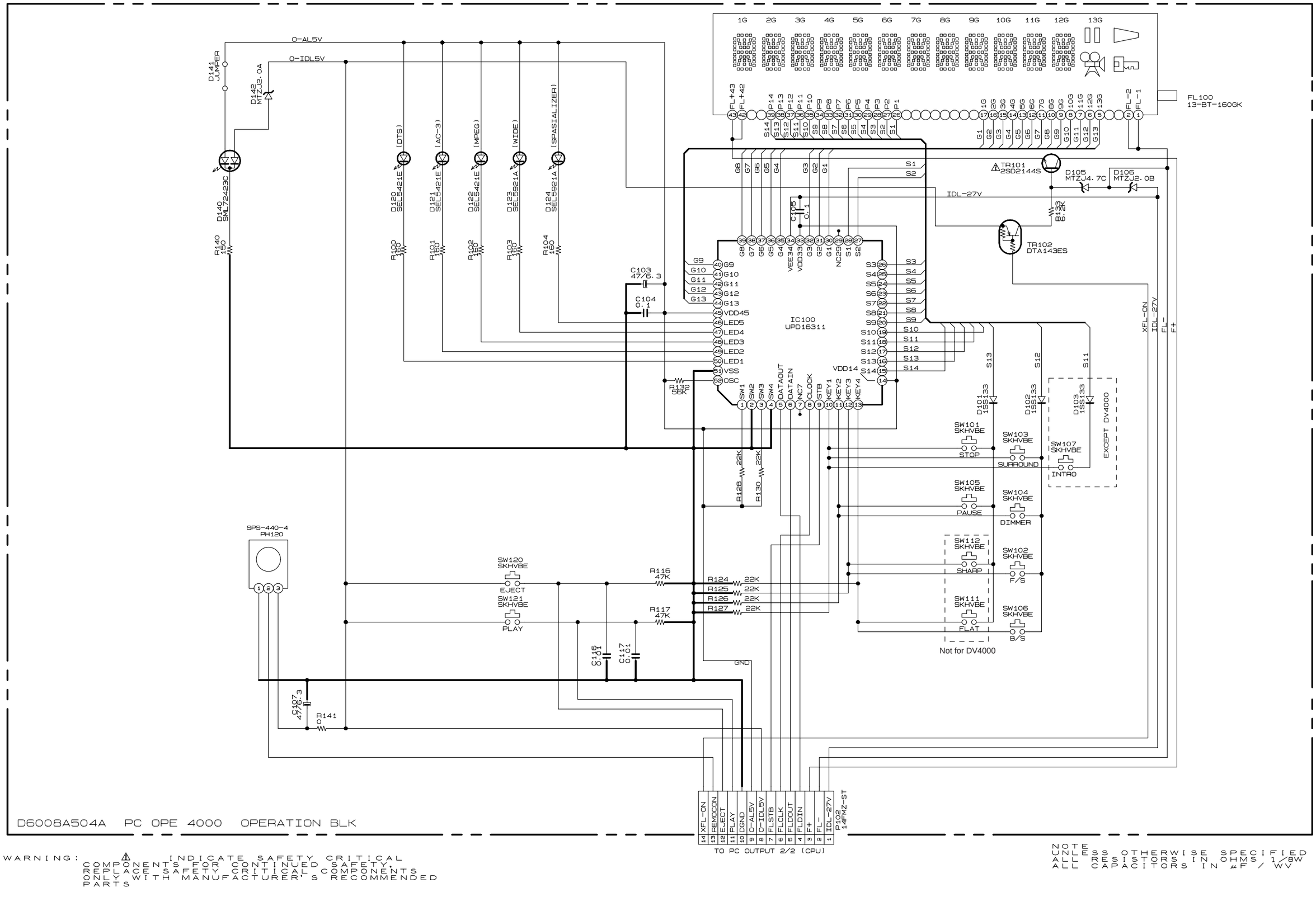
TR320
TR110 TR350 TR361 TR900 TR902 TR901
IC200 TR200 TR310 TR360 TR321 TR421 TR531 TR530 TR482 TR450



OUTPUT BOTTOM VIEW

IC719 IC700 IC470 IC520 IC570 IC420 TR400~TR405 TR500~TR505 IC340 TR540~TR542 TR130~TR133 IC250



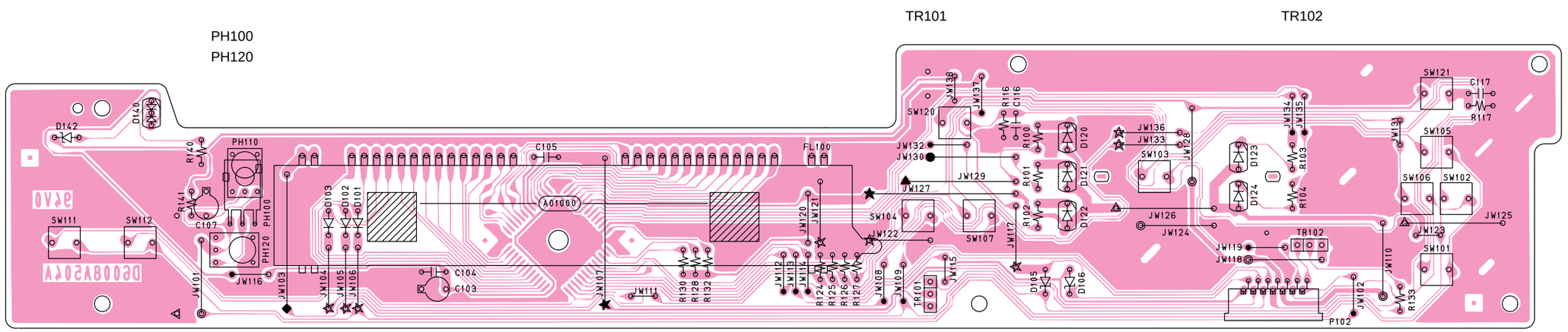


D6008A504A PC OPE 4000 OPERATION BLK

WARNING: ⚠ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W
ALL CAPACITORS IN μF / WV

OPERATION


PH100
PH120
TR101
TR102
D142
D140
R140
PH110
SW111
SW112
C107
PH120
PH100
JW101
JW116
JW103
D103
D102
D101
JW104
JW105
JW106
C105
A01000
C104
C103
JW107
JW111
FL100
R130
R128
R132
JW112
JW113
JW114
JW120
JW121
R124
R125
R126
R127
JW108
JW109
TR101
JW115
SW120
JW138
JW137
R116
C116
R100
JW132
JW130
JW127
JW129
SW104
JW122
SW107
R101
R102
JW117
D120
D121
D122
D105
D106
JW136
JW133
JW128
SW103
JW126
JW124
D123
D124
JW134
JW135
R103
R104
TR102
JW119
JW118
P102
SW121
C117
R117
JW131
SW105
SW106
SW102
JW125
JW123
SW101
JW110
JW102
R133

D6008A5020 PC POWER

P500 *1:M1932 *2:M1934
F500 250VT3.15AE
SW500 SDKLA10200
L501 LU-8SA-V102
C514 0.22/275V
L500 LF-4ZA-E263
C513 0.1/275V
C512 1000P
C511 1000P
IC501 STR-F6672
T501 D6003KALL
R512 68K/1W
D502 1SS133 T-77
R508 5.6
R503 2.2K
D504 1SS133T-77
PH501 PS2561 -1-V
C504 220P/1KV
D508 1N4006 -N02
D509 1N4006 -N02
D510 1N4006 -N02
D511 1N4006 -N02
560K R510
560K R500
R504 680
R505 0.36/1W
C502 47/25YXG
C505 470P
C501 120/400
C503 100P
R502 3.3K
PH500 PF5001 -B.C.D
C509 1000P/400V
TP00385-41 D00200

D559 AK06
0.24 FR552
L554 33
C567 120/16YXG
C563 120/16YXG
C568 220/16
C564 220/16
C565 100/10
C569 100/10
FB551 ZBF503S
IC556 NJM78M09FA
D558 AK06
FR551 0.24
L553 33
IC555 NJM79M09FA
D557 RK16 LF-C1
0.1 FR554
L556 PC7 -330K
C560 330/25ZL
C561 220/25
R557 4.7K
C577 22/35
R559 1K
R558 510 /0.5W
TR559 DTC143ZS
D556 FMB-G14L
L551 PC7 -330K
C557 2200/6.3ZL
C558 330/6.3
TR560 2SB1326
C553 0.1/50
C556 22/50YXG
C550 2.2/50
D555 1SS244T-77
FR556 22
100 L557
C555 100/10 YXG
D553 AK03
FR555 0.75
R550 1K
FB550 ZBF503S
TR558 DTC143ZS
R556 100/0.5W
D564 MTZJ 5.1C
C559 22/35
TR551 2SB1326
R555 33
R554 1K
R552 1K(F)
1/50 YXA C551
IC5551 KA431AZ
R551 1K(F)
TR550 DTC143ZS
IC553 KA78R33
R553 0.75/2W
C574 330/6.3
C554 47/6.3
C562 0.01
TP00385-41 A00200

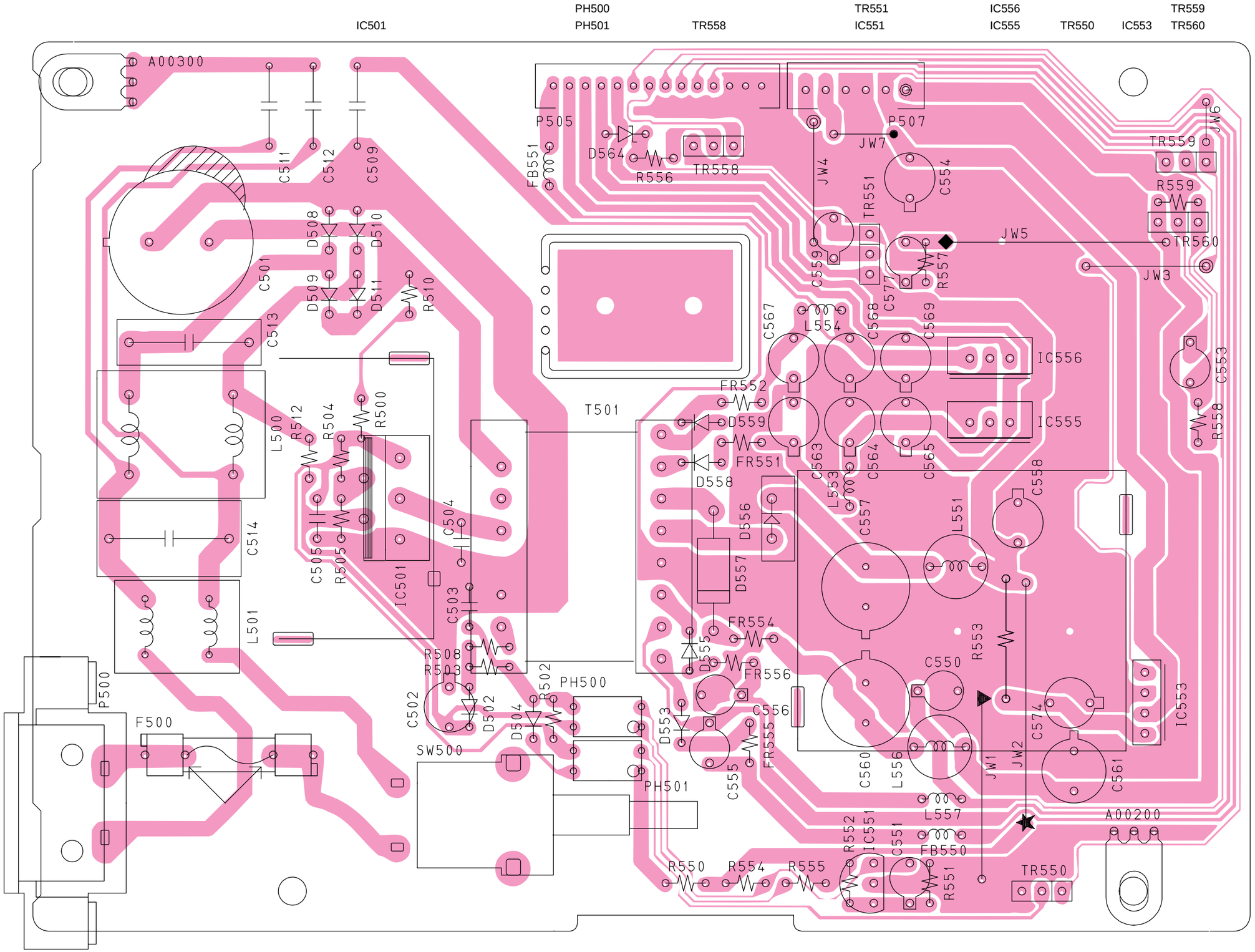
P505 B14B-PH-K
IDL11VU 14
IDL+9V 13
IDL-9V 12
IDL5V 11
AL5V 10
PRCTL 9
ALCTL5 8
ALCTL3 7
FL+ 6
FL- 5
IDL-27V 4
DAVGND 3
DAVGND 2
DAVGND 1
TO PC OUTPUT 4000 2/2 (CPU)

P507 B6B-XH-A
ALPM11VU 1
MGND 2
DGND 3
DGND 4
AL3.3V 5
AL5V 6
TO PC MAIN 2/3 (ODC/CPU/AV-DEC)

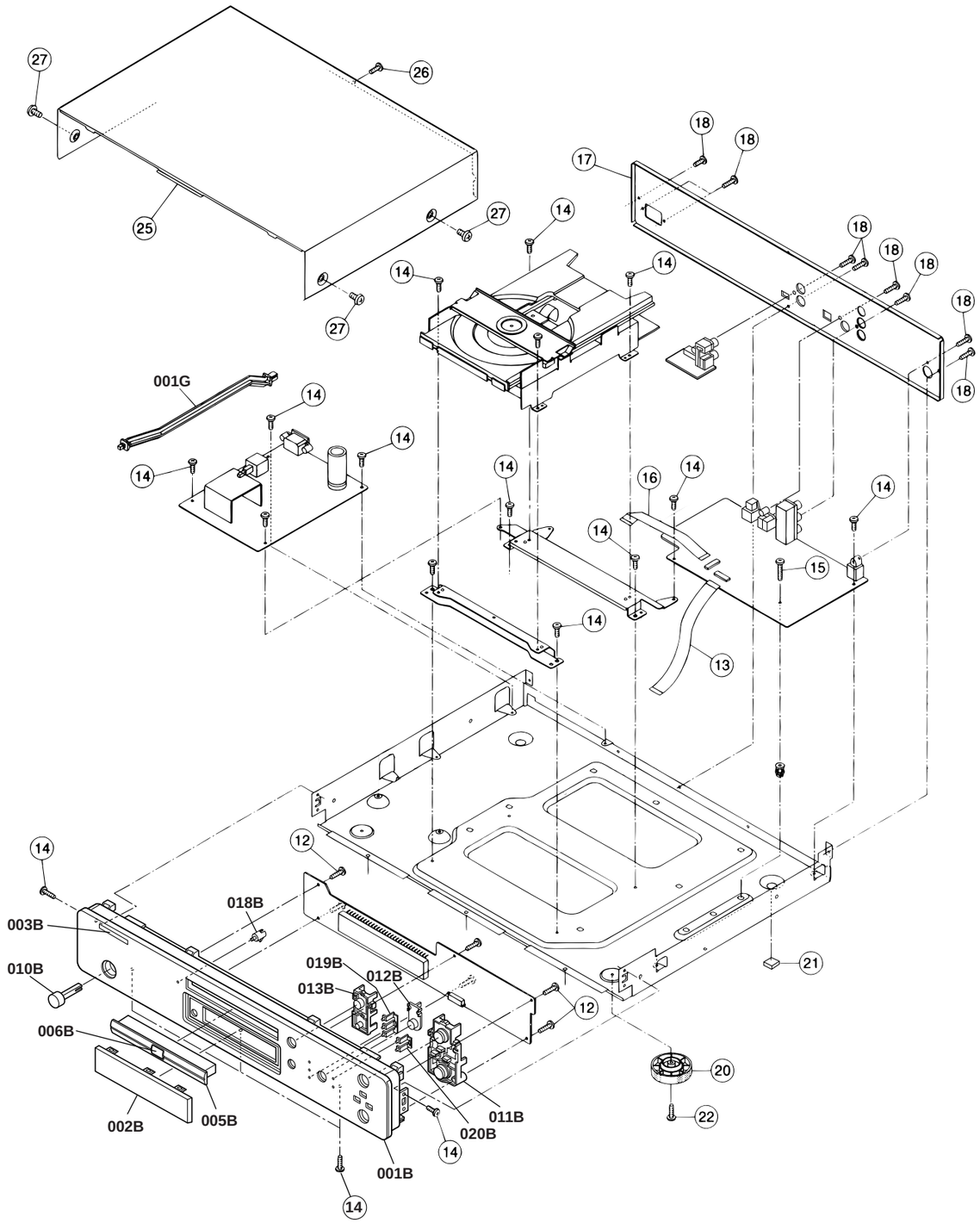
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS (1/4W)
ALL ALUMINUM ELECTROLYTIC CAPACITORS IN μF/V

WARNING: ⚠ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

POWER


IC501
PH500
PH501
TR558
TR551
IC551
IC556
IC555
TR550
IC553
TR559
TR560
A00300
P505
D564
R556
TR558
FB551
P507
JW7
JW4
TR551
C554
JW6
TR559
R559
TR560
JW5
JW3
C559
C577
R557
C567
L554
C568
C569
IC556
IC555
C553
R558
T501
FR552
D559
FR551
D558
C563
C564
C565
L553
C557
D556
D557
L551
C558
C511
C512
C509
C501
D508
D510
D509
D511
R510
C513
L500
R512
R504
R500
C514
C505
R505
IC501
C504
C503
L501
R508
R503
C502
D502
D504
R502
PH500
P500
F500
SW500
PH501
D553
D555
FR554
FR556
C556
C555
FR555
R553
C550
C574
JW1
JW2
C560
L556
C561
IC553
L557
A00200
R552
IC551
C551
FB550
R551
TR550
R550
R554
R555

13. EXPLODED VIEW AND PARTS LIST



(VERS. :VERSION, U:U.S.A., F:JAPAN, K:FAR EAST, ⁎:EUROPE)

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)
001B	/F1N,/S1G,/K1G		PANEL FRONT (GLD)HB	294W248110
001B	/U1B /N1B		PANEL FRONT (BLK)V2	294W248020
001B	/N1B	9965 000 04731	PANEL FRONT (BLK)HB	294W248010
002B		9965 000 04735	WINDOW FLD	294W158010
003B		4822 454 11825	BADGE MARANTZ	185J251010
005B	/F1N,/S1G,/K1G		PANEL TRAY (GLD)	294W053110
005B	/U1B /N1B	9965 000 04745	PANEL TRAY (BLK)	294W053010
006B	/F1N,/S1G,/K1G		PLATE DVD (GLD)	294W251110
006B	/U1B /N1B	9965 000 04736	PLATE DVD (BLK)	294W251010
010B	/F1N,/S1G,/K1G		BUTTON POWER (GLD)	294W270110
010B	/U1B /N1B	9965 000 04743	BUTTON POWER (BLK)	294W270010
011B	/F1N,/S1G,/K1G		BUTTON PLAY (GLD)	294W270120
011B	/U1B /N1B	9965 000 04732	BUTTON PLAY (BLK)	294W270020
012B	/F1N,/S1G,/K1G		BUTTON SURROUND (GLD)	294W270130
012B	/U1B /N1B	9965 000 04733	BUTTON SURROUND (BLK)	294W270030
013B	/F1N,/S1G,/K1G		BUTTON EJECT (GLD)	294W270140
013B	/U1B /N1B	9965 000 04734	BUTTON EJECT (BLK)	294W270040
018B		9965 000 04737	LENS POWER	294W355010
019B		9965 000 04738	LENS DTS	294W355020
020B		9965 000 04739	LENS WIDE	294W355030
001G		9965 000 04744	JOINT POWER	294W357010
12		nsp	BT BID26X08STL CMT	nsp
13		9965 000 04740	FFC BD P1.0 L230 14P	*YU000590R
14		nsp	ST BID30X06STL CMT	nsp
15		nsp	BT BID30X14STL NI3	nsp
16		9965 000 04741	FFC BD P0.5 L160 24P	*YU000620R
17	/F1N	nsp	PANEL REAR DV4000 (J) (CH)	nsp
17	/U1B	nsp	PANEL REAR DV4000(A) (CH)	nsp
17	/N1B	nsp	PANEL REAR DV4000 (E) (CH)	nsp
17	/S1G	nsp	PANEL REAR DV4000(U5) (CH)	nsp
17	/K1G	nsp	PANEL REAR DV4000(Y4) (CH)	nsp
18		nsp	BT BID30X08STL BZN	nsp
20		9965 000 04742	FOOT	294W057010
21		nsp	CUSHION FOOT 12X12X2 (CH)	nsp
22		nsp	ST BID30X10STL CMT	Nsp
25	/F1N,/S1G,/K1G	nsp	COVER UPPER (G) (CH)	nsp
25	/U1B /N1B	nsp	COVER UPPER (B) (CH)	nsp
26		nsp	BT BID30X08STL BZN	nsp
27	/F1N,/S1G,/K1G	nsp	ST BID40X06STL COP CLEAR	nsp
27	/U1B /N1B	nsp	ST BID40X06STL BZN	Nsp

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)
			PACKING	
001T	/F1N		USER GUIDE (JPN)	294W851110
001T	/K1G		USER GUIDE (ENG/CHINA)	294W851350
001T	/N1B	9965 000 04748	USER GUIDE (5LANGUAGE)	294W851310
001T	/S1G		USER GUIDE (ENG/CHINA)	294W851350
001T	/U1B		USER GUIDE (ENG/FRAN)	294W851250
001Z		9965 000 04746	REMOTE CONTROLLER RC4000DV	ZK294W0010
002Z	/N1B	nsp	CORD 21P YAF11-0642 1.5M	nsp
	/F1N		MAINS CORD (JPN)	*YC000420R
	/U1B		MAINS CORD (USA)	*YC000430R
	/N1B	9965 000 04747	MAINS CORD (EUR/S-pore)	*YC000410R
	/S1G			
	/K1G		MAINS CORD (CHINA)	*YC000440R

14. ELECTRICAL PARTS LIST

ASSIGNMENT OF COMMON PARTS CODES.

RESISTORS

R＊＊＊ : 1) GD05 x x x 140, Carbon film fixed resistor,±5% 1/4W
R＊＊＊ : 2) GD05 x x x 160, Carbon film fixed resistor,±5% 1/6W
① Resistance value

Examples
① Resistance value

0.1Ω 001	10Ω 100	1kΩ 102	100kΩ 104
0.5Ω 005	18Ω 180	2.7kΩ 272	680kΩ 684
1Ω 010	100Ω 101	10kΩ 103	1MΩ 105
6.8Ω 068	390Ω 391	22kΩ 223	4.7MΩ 475

Note : Please distinguish 1/4W from 1/6W by the shape of parts used actually.

CAPACITORS

C＊＊＊ : CERAMIC CAP.
3) DD1 x x x x 370, Ceramic capacitor
Disc type
Temp.coeff. P350~N1000, 50V
③ Capacity value
② Tolerance

Examples
② Tolerance (Capacity deviation)
±0.25 pF 0
±0.5 pF 1
±5 % 5
Tolerance of COMMON PARTS handled here are as follows :
0.5 pF - 5 pF ..... ± 0.25 pF
6 pF - 10 pF ..... ± 0.5 pF
12 pF - 560 pF ... ± 5 %
③ Capacity value

0.5 pF 005	3 pF 030	100 pF 101	
1 pF 010	10 pF 100	220 pF 221	
1.5 pF 015	47 pF 470	560 pF 561	

C＊＊＊ : CERAMIC CAP.
4) DK16 x x x 300, High dielectric constant ceramic capacitor
Disc type
Temp.chara. 2B4, 50V
④ Capacity value

Examples
④ Capacity value

100 pF 101	1000 pF 102	10000 pF 103
470 pF 471	2200 pF 222	

C＊＊＊ : 5) ELECTROLY CAP.( ), 6)FILM CAP ( )
5) EA x x x x x x 10, Electrolytic capacitor
One-way lead type,Tolerance ±20%
⑥ Working voltage
⑤ Capacity value

Examples
⑤ Capacity value

0.1μF 104	4.7μF 475	100μF 107
0.33μF 334	10μF 106	330μF 337
1μF 105	22μF 226	1100μF 118
2200μF 228		

⑥ Working voltage

6.3 V 006	25 V 025
10 V 010	35 V 035
16 V 016	50 V 050

6) DF15 x x x 350 → Plastic film capacitor
DF15 x x x 310 → One-way type, Mylar ±5% 50V
DF16 x x x 310 → Plastic film capacitor
One-way type, Mylar ±10% 50V
⑦ Capacity value

Examples
⑦ Capacity value

0.001μF (1000 pF) 102	0.1μF 104
0.0018μF 182	0.56μF 564
0.01μF 103	1μF 105
0.015μF 153	

NOTE 1) The above CODES(R＊＊＊ ,R＊＊＊ ,C＊＊＊ ,C＊＊＊ and C＊＊＊) are omitted on the schematic diagram in some case.
2) On the occasion, be confirmed the common parts on the parts list.
3) Refer to “Common Parts List” for the other common parts**(RI05, DD4, DK4)**.

NOTE ON SAFETY FOR FUSIBLE RESIST OR :

The suppliers and their type numbers of fusible resistors are as follows ;
1 . KOA Corporation

Part No.(MJI)	Type No.(KOA)	Description
NH05 x x x 140	RF25S x x x x Ω	J ±5% (1/4W)
NH05 x x x 120	RF50S x x x x Ω	J ±5% (1/2W)
NH85 x x x 110	RF73B2A x x x x Ω	J ±5% (1/10W)
NH95 x x x 140	RF73B2E x x x x Ω	J ±5% (1/4W)

＊ Resistance value Resistance value(0.1Ω - 10k Ω)

2. Matsushita Electronic Components Co., Ltd

Part No.(MJI)	Type No.(MEC)	Description
NF05 x x x 140	ERD-2FCJ x x x	(±5% 1/4W)
RF05 x x x 140		
NF02 x x x 140	ERD-2FCG x x x	(±2% 1/4W)
RF02 x x x 140		

＊Resistance value

Examples
＊Resistance value

0.1Ω 001	10Ω 100	1kΩ 102	100kΩ 104
0.5Ω 005	18Ω 180	2.7kΩ 272	680kΩ 684
1Ω 010	100Ω 101	10kΩ 103	1MΩ 105
6.8Ω 068	390Ω 391	22kΩ 223	4.7MΩ 475

ABBREVIATION AND MARKS			
ANT.	: ANTENNA	BATT.	: BATTERY
CAP.	: CAPACITOR	CER.	: CERAMIC
CONN.	: CONNECTING	DIG.	: DIGITAL
HP	: HEADPHONE	MIC.	: MICROPHONE
μ-PRO	: MICROPROCESSOR	REC.	: RECORDING
RES.	: RESISTOR	SPK	: SPEAKER
SW	: SWITCH	TRANSF.	: TRANSFORMER
TRIM.	: TRIMMING	TRS.	: TRANSISTOR
VAR.	: VARIABLE	X’ TAL	: CRYSTAL

NOTE ON SAFETY:

Symbol ⚠ Fire or electrical shock hazard. Only original parts should be used to replaced any part marked with symbol ⚠ Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

安全上の注意：

⚠ がついている部品は、安全上重要な部品です。必ず指定されている部品番号の部品を使用して下さい。

(VERS. :VERSION, U:U.S.A., F:JAPAN, K:FAR EAST, **:EUROPE)

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)
			OPERATION CIRCUIT BOARD	
			DIODES	
D101		9965 000 04668	1SS133T-77 T26	*HD201380R
D102		9965 000 04668	1SS133T-77 T26	*HD201380R
D105		9965 000 01138	MTZJ4.7C T26	*HD301820R
D106		4822 130 82609	MTZJ2.0B T26	*HD301780R
D120		9965 000 04669	LED SEL5421ETP15	*HI100850R
D121		9965 000 04669	LED SEL5421ETP15	*HI100850R
D122		9965 000 04669	LED SEL5421ETP15	*HI100850R
D123		9965 000 04670	LED SEL2910ATP6 ORANGE	HI10031080
D124		9965 000 04670	LED SEL2910ATP6 ORANGE	HI10031080
D140		9965 000 04671	LED SPR325MVWT31	*HI100840R
D142		9965 000 04672	MTZJ2.0A T26	*HD301760R
			INTEGRATED CIRCUITS	
IC100		4822 209 90244	IC UPD16311GC-AB6	HC10283060
			TRANSISTORS	
PH120		9965 000 04674	IR SPS-440-4-E	*HW100460R
TR101		4822 130 61892	2SD2144S U/V/W	*HT400420R
TR102		4822 130 60889	DTA143ES	*BA000800R
			MISCELLANEOUS	
FL100		9965 000 04673	FLD 13-BT-160GK	*HQ300410R
P102		nsp	SOCKET 14-FMZ-ST 14P	nsp
SW101		4822 276 20508	SW TACT SKHVBE	SP0101128X
SW102		4822 276 20508	SW TACT SKHVBE	SP0101128X
SW103		4822 276 20508	SW TACT SKHVBE	SP0101128X
SW104		4822 276 20508	SW TACT SKHVBE	SP0101128X
SW105		4822 276 20508	SW TACT SKHVBE	SP0101128X
SW106		4822 276 20508	SW TACT SKHVBE	SP0101128X
SW120		4822 276 20508	SW TACT SKHVBE	SP0101128X
SW121		4822 276 20508	SW TACT SKHVBE	SP0101128X
			POWER CIRCUIT BOARD	
			CAPACITORS	
⚠ C509		nsp	CER. 1000pF 400V	nsp
⚠ C511		nsp	CER. 1000pF 400V	nsp
⚠ C512		nsp	CER. 1000pF 400V	nsp
⚠ C513		nsp	MYLAR 0.1μF 275V	nsp
⚠ C514		nsp	MYLAR 0.22μF 275V	nsp
			DIODES	
D502		9965 000 04668	1SS133T-77 T26	*HD201380R
D504		9965 000 04668	1SS133T-77 T26	*HD201380R
⚠ D508		9965 000 04675	1N4006N02 800/1A	*HD201300R
D509		9965 000 04675	1N4006N02 800/1A	*HD201300R
D510		9965 000 04675	1N4006N02 800/1A	*HD201300R
D511		9965 000 04675	1N4006N02 800/1A	*HD201300R
⚠ D553		9965 000 04676	AK03V0 T26	*HD201310R
⚠ D555		9965 000 04677	1SS244T-77T26 250/0.2A	*HD201370R
⚠ D556		5322 130 10293	FMB-G14L 40/5.0A	*HD201340R
⚠ D557		9965 000 04678	RK16LF-C1 S15 60/1.5A	*HD201350R
⚠ D558		9965 000 04679	AK06V0 T26 60/0.7A	*HD201360R
⚠ D559		9965 000 04679	AK06V0 T26 60/0.7A	*HD201360R
D564		4822 130 11643	MTZJ5.1C T26	*HD301770R
			INTEGRATED CIRCUITS	
⚠ IC501		9965 000 04685	IC STR-F6672	*HC105280R
⚠ IC551		9965 000 04686	IC KA431AZTA	*HC105270R
⚠ IC553		9965 000 04687	IC KA278R33	*HC105260R
⚠ IC555		9965 000 04692	IC NJM79M09FA	HC3950909F
⚠ IC556		4822 209 33232	IC NJM78M09FA	HC3850909F
			TRANSISTORS	
TR550		9965 000 04706	DTC143ZS	*BA000810R
⚠ TR551		9965 000 04707	2SB1326 Q/R	*HT200380R
TR558		9965 000 04706	DTC143ZS	*BA000810R
TR559		9965 000 04706	DTC143ZS	*BA000810R

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)
⚠ TR560		9965 000 04707	2SB1326 Q/R	*HT200380R
			RESISTORS	
⚠ FR551		9965 000 04680	0.24 Ω ±10% 1/4W FUSE	*NH000110R
⚠ FR552		9965 000 04680	0.24 Ω ±10% 1/4W FUSE	*NH000110R
⚠ FR554		9965 000 04681	0.1 Ω ±10% 1/4W FUSE	NH05001140
⚠ FR555		9965 000 04682	0.75 Ω ±10% 1/4W FUSE	*NH000130R
⚠ FR556		9965 000 04683	22 Ω ±5% 1/4W FUSE	*NH000120R
⚠ R504		4822 050 26801	680 Ω ±5% 1/4W	GG05681140
R505		9965 000 04701	0.36 Ω ±5% 1W	*GA000180R
⚠ R508		9965 000 04702	5.6 Ω ±5% 1/4W	GG05056140
R512		9965 000 04703	68K Ω ±5% 1W	GA05683010
R553		9965 000 04704	0.75 Ω ±5% 2W	*GA000170R
			MISCELLANEOUS	
⚠ F500		9965 000 04684	FUSE 219 T 250V 3.15A	*FS000720R
⚠ L500		9965 000 04693	COIL LF-4ZA-E263 26.0mH	*LC200120R
L501		9965 000 04694	COIL LU-8SA-V102 1.0mH	*LC200130R
L551		9965 000 04695	COIL FIX 2 PC7 330K	*LC107270R
L553		9965 000 04696	COIL FIX 1 EL0606RA 330J	LC13333000
L554		9965 000 04696	COIL FIX 1 EL0606RA 330J	LC13333000
L556		9965 000 04695	COIL FIX 2 PC7 330K	*LC107270R
L557		9965 000 04697	COIL FIX 1 EL0606RA 101J	LC11043000
⚠ PH500		9965 000 04698	PHOTO COUP. PF5001-B	*HC200080R
⚠ PH501		9965 000 04699	PHOTO COUP. PS2561-1-V	*HC200070R
⚠ P500A	/F1N,/K1G,/N1B/S1G	9965 000 04700	MAINS INLET M1932 1P	*YT001950R
⚠ P500B	/U1B		MAINS INLET M1934 1P	*YT001960R
⚠ SW500		9965 000 04705	SW PUSH SDKLA10200 01-1	*SP000990R
⚠ T501		9965 000 04708	TRANS MAINS D6003KALL	*TS001150R
			OUTPUT CIRCUIT BOARD	
			DIODES	
D110		9965 000 04620	1SS355TE-17	*HD201320R
D111		9965 000 04620	1SS355TE-17	*HD201320R
D112		9965 000 04620	1SS355TE-17	*HD201320R
D120		9965 000 04620	1SS355TE-17	*HD201320R
D121		9965 000 04620	1SS355TE-17	*HD201320R
D350		9965 000 04620	1SS355TE-17	*HD201320R
D351		9965 000 04620	1SS355TE-17	*HD201320R
D540	/N1B	9965 000 04709	UDZ6.2BTE-17	*HD301790R
D541	/N1B	9965 000 04710	UDZ12BTE-17	*HD301800R
D900		9965 000 04620	1SS355TE-17	*HD201320R
			INTEGRATED CIRCUITS	
IC200		9965 000 04711	IC TC7SET08FTE85L	*HC105290R
IC250		9965 000 04713	IC TC74HCU04AF	*HC105310R
IC340		9965 000 04714	IC NJM4580M	*HC105240R
IC470		9965 000 04715	IC BA7666FS-E2	*HC105460R
IC520	/N1B	4822 209 83368	IC TC4053BF	HC405300Z0
IC570	/N1B	9965 000 04716	IC BA7660FS-E2	*HC105250R
IC700		9965 000 04717	IC M38034M4-053FP	*HC105510R
IC719		9965 000 04718	IC XC61AN4002MR	*HC105410R
			TRANSISTORS	
TR110		4822 130 10982	2SA1037AK R/S	*HT100470R
TR130		9965 000 04707	2SB1326 Q/R	*HT200380R
TR131		9965 000 04725	2SD2097 Q/R/S	*HT400430R
TR132		9965 000 04726	DTC143ZKA	*BA000840R
TR133		9965 000 04727	DTA143ZKA	*BA000830R
TR200		9965 000 04727	DTA143ZKA	*BA000830R
TR350		9965 000 04727	DTA143ZKA	*BA000830R
TR360		9965 000 04728	2SD2114K	HX421141V0
TR361		9965 000 04728	2SD2114K	HX421141V0
TR400		4822 130 10982	2SA1037AK R/S	*HT100470R
TR401		4822 130 10982	2SA1037AK R/S	*HT100470R
TR402		4822 130 10982	2SA1037AK R/S	*HT100470R
TR403		9965 000 04729	2SC2412K R/S	*HT300710R

(VERS. :VERSION, U:U.S.A., F:JAPAN, K:FAR EAST, **:EUROPE)

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)
TR404		9965 000 04729	2SC2412K R/S	*HT300710R
TR405		9965 000 04729	2SC2412K R/S	*HT300710R
TR420		9965 000 04729	2SC2412K R/S	*HT300710R
TR421		9965 000 04729	2SC2412K R/S	*HT300710R
TR450		9965 000 04726	DTC143ZKA	*BA000840R
TR482		9965 000 04729	2SC2412K R/S	*HT300710R
TR500	/N1B	4822 130 10982	2SA1037AK R/S	*HT100470R
TR501	/N1B	4822 130 10982	2SA1037AK R/S	*HT100470R
TR502	/N1B	4822 130 10982	2SA1037AK R/S	*HT100470R
TR503	/N1B	9965 000 04729	2SC2412K R/S	*HT300710R
TR504	/N1B	9965 000 04729	2SC2412K R/S	*HT300710R
TR505	/N1B	9965 000 04729	2SC2412K R/S	*HT300710R
TR530	/N1B	9965 000 04726	DTC143ZKA	*BA000840R
TR531	/N1B	9965 000 04729	2SC2412K R/S	*HT300710R
TR540	/N1B	4822 130 10982	2SA1037AK R/S	*HT100470R
TR541	/N1B	9965 000 04726	DTC143ZKA	*BA000840R
TR542	/N1B	9965 000 04726	DTC143ZKA	*BA000840R
TR580	/N1B	9965 000 04729	2SC2412K R/S	*HT300710R
TR581	/N1B	9965 000 04729	2SC2412K R/S	*HT300710R
TR582	/N1B	9965 000 04729	2SC2412K R/S	*HT300710R
TR900		4822 130 10982	2SA1037AK R/S	*HT100470R
TR901		9965 000 04729	2SC2412K R/S	*HT300710R
TR902		9965 000 04729	2SC2412K R/S	*HT300710R
			MISCELLANEOUS	
J200		4822 267 31369	SOCKET OPTICAL GP1F32T	YJ15000090
J500	/N1B	9965 000 04719	SCART YKF41-5021 21P	*YT001970R
L250		9965 000 04720	TRANS PULSE TC-1027-04	*TP000030R
PJ250		9965 000 04721	RCA JACK HSP-241V1B (1P)	*YT002000R
PJ300	/F1N,/K1G,/S1G /U1B		RCA JACK HSP-243V2-07 (3P)	*YT001980R
PJ400		9965 000 04722	S-VIDEO HDC-050A (4P)	*YT001990R
PJ900		9965 000 04723	RCA JACK HSP-242V3-23 (2P)	*YT002010R
SW900		9965 000 04724	SW SLIDE SK12P7.2G4 1-01-02	*SS000610R
X722		9965 000 04730	RESONATOR CCR8.0MC5T	*FQ000420R

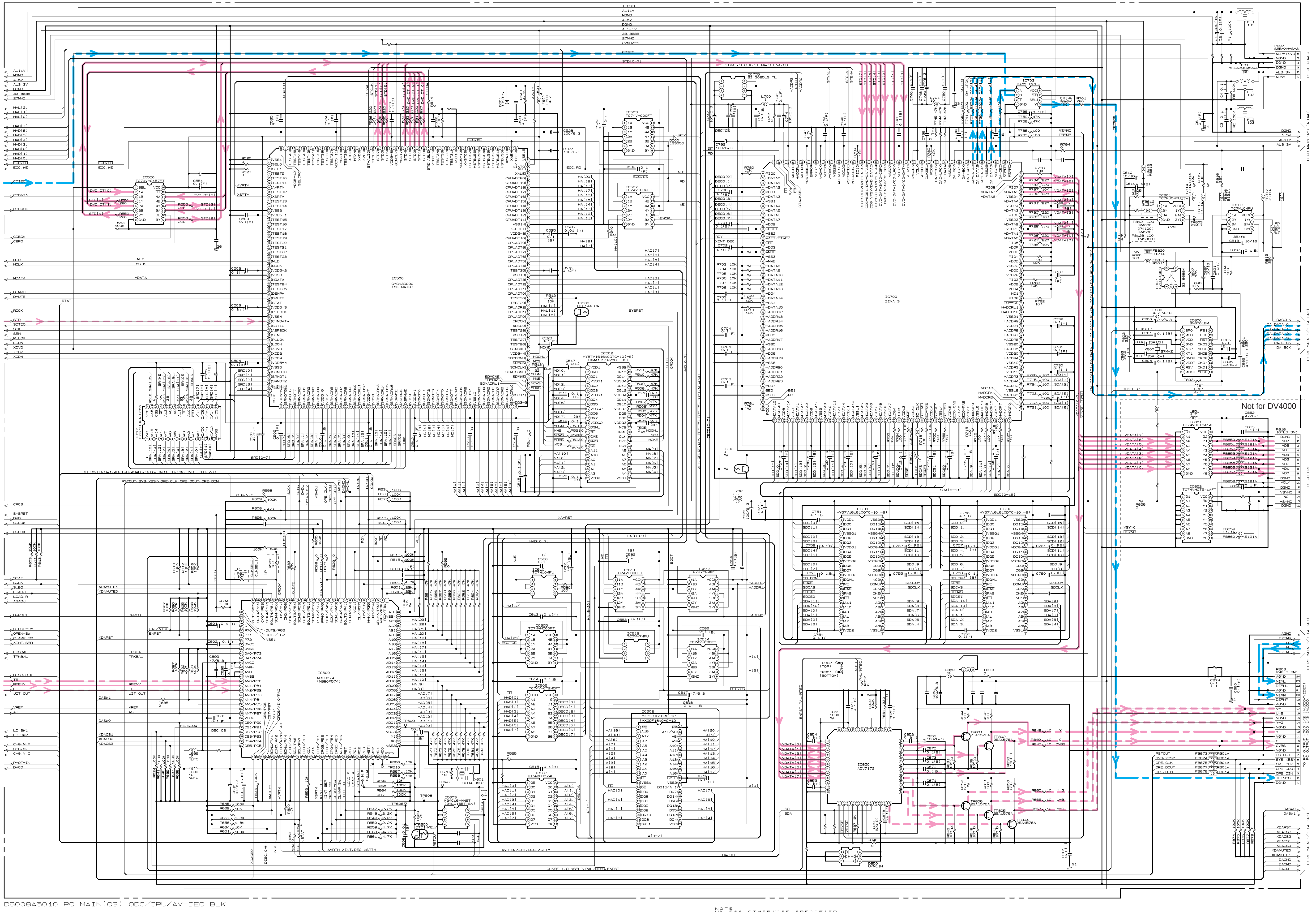
<<IMPORTANT NOTICE>>

This service manual explains the product DV4000 which mounted the **DVD module TKM1000MZ with the main board <C3M1>** only. Products which mounted <C3M1> are as follows. (see table) All other products have mounted <M3C1> main board. Spare parts for <M3C1> main board are not available. In case of defects are found with the <M3C1> main board, complete DVD module must be replaced by the TKM1000MZ with the main board <C3M1>.

Versions	Serial numbers (C3M mounted)
/F1N	MZ000002140001 — MZ000002141000 MZ000004150001 — MZ000004151000
/N1B	MZ009950100001 — MZ009950101000 MZ000003130001 — MZ000003130500 MZ000003130501 — MZ000003131000
/U1B	MZ009950090001 — MZ009950091300 MZ000002120001 — MZ000002120200

15. SCHEMATIC DIAGRAM AND PARTS LOCATION (TKM1000MZ)

MAIN-1/3

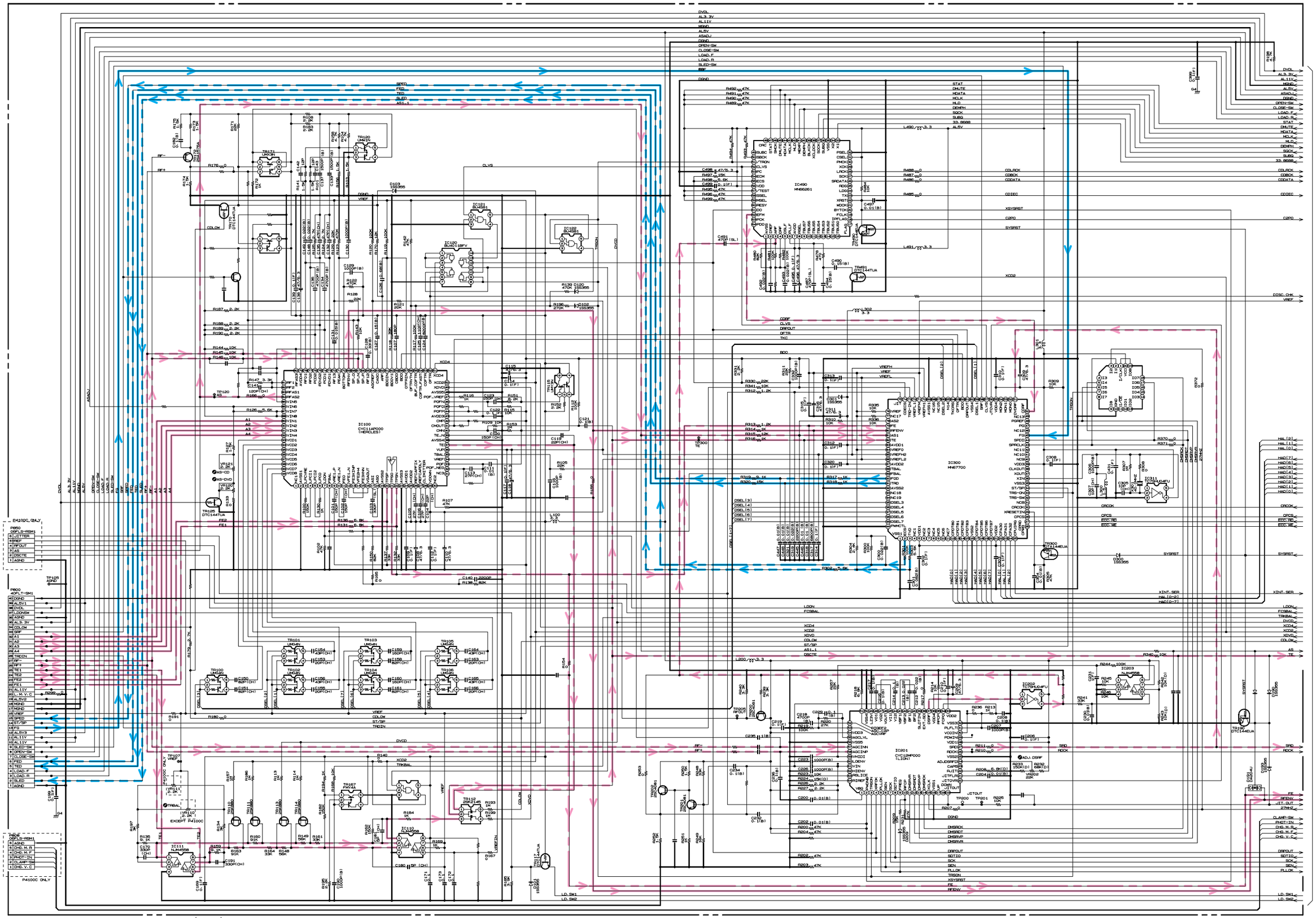


D6008A5010 PC MAIN(C3) ODC/CPU/AV-DEC BLK

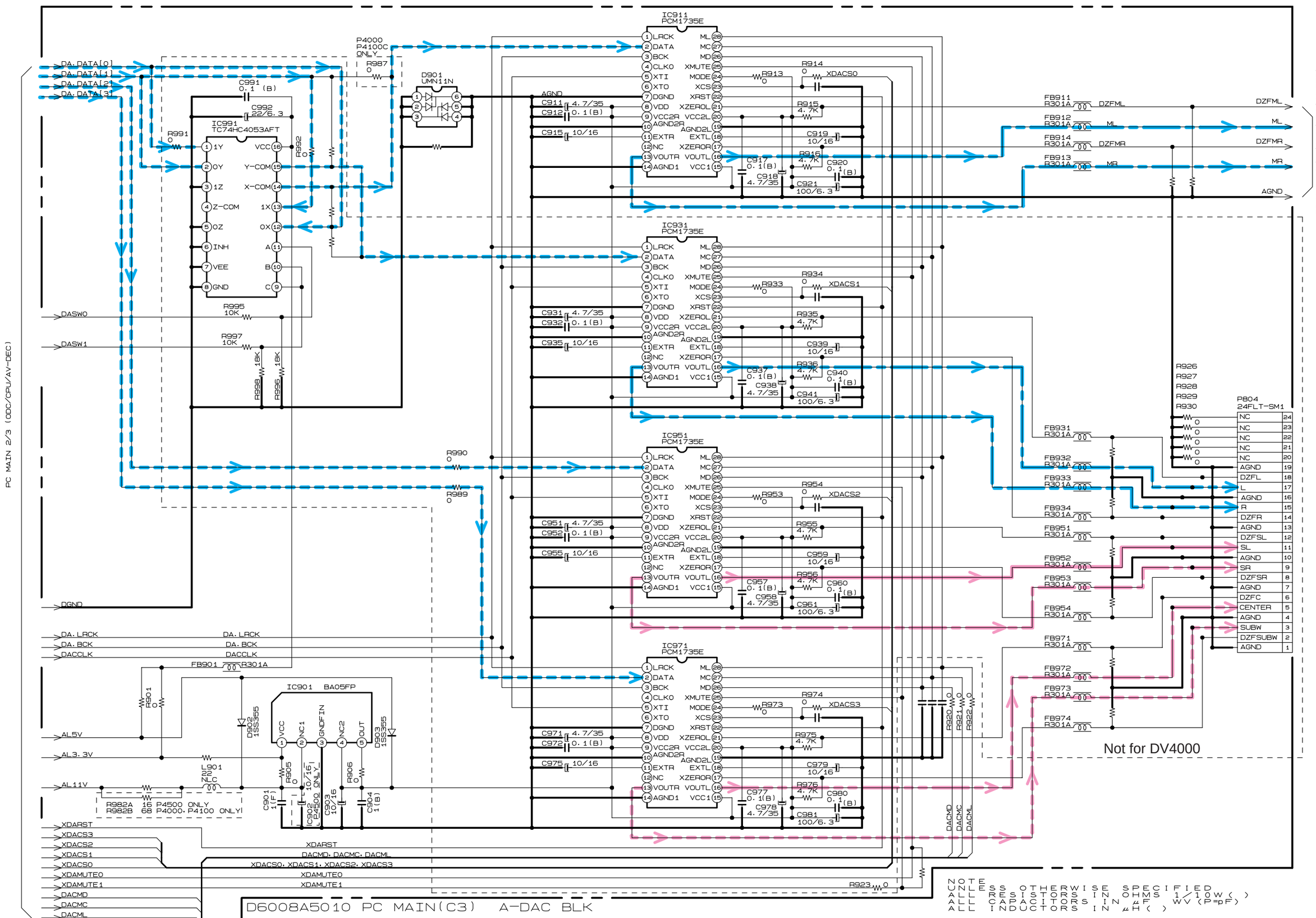
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/10W ( )
ALL CAPACITORS IN µF WV (P=pF)
ALL INDUCTORS IN µH ( )

Not for DV4000

MAIN-2/3

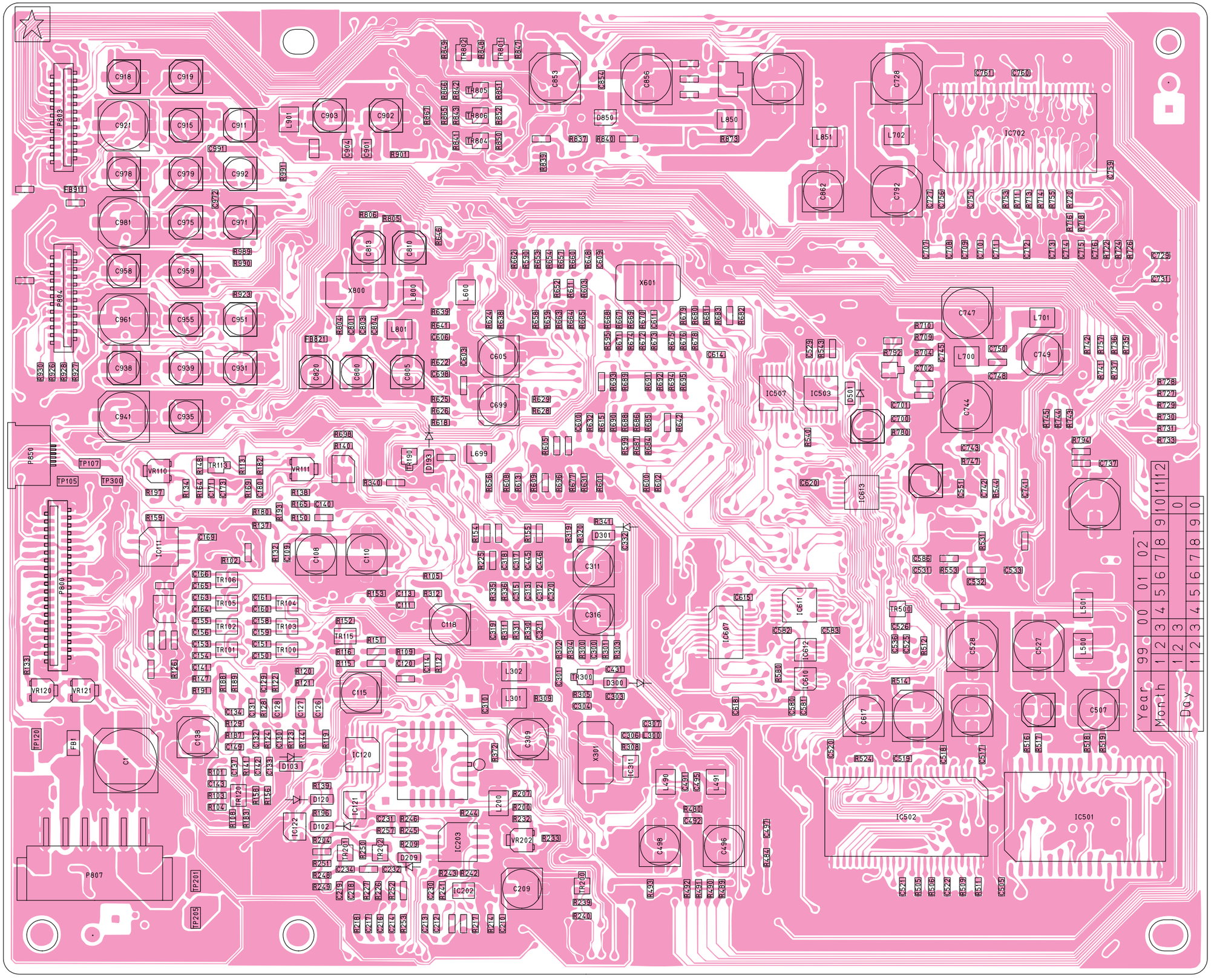

TO PC MECHA 4000
TO PC MAIN 2/3 (DDC/CPU/AV-DEC)
IC100 CXC1134P000 (HERCULES)
IC490 MN66261
IC300 MN67700
IC201 CXC1MP000 (LION)
IC202 TC74LCX04FU
IC203 NJM2068
IC111 NJM4558
IC110 NJM4558
IC180 BU4213BFV
IC181 BU4581
IC182 BU4581
IC183 BU4581
TR120 UMG1N
TR121 UMG1N
TR100 UMG4N
TR101 UMG4N
TR102 UMG4N
TR103 UMG4N
TR104 UMG4N
TR105 UMG4N
TR106 UMG4N
TR125 DTC144TUA
TR126 DTC144TUA
TR171 UMG3N
TR172 2SB1218A
TR490 DTC144TUA
TR491 DTC144TUA
TR492 DTC144TUA
TR300 DTA144EUA
TR190 DTC144EUA
TR167 FM144
TR117 DTC144TUA
P4100C ONLY
P4100C ONLY
P4100C ONLY

MAIN-3/3


PC MAIN 2/3 (ODC/CPU/AV-DEC)
DA.DATA[0]
DA.DATA[1]
DA.DATA[2]
DA.DATA[3]
P4000
P4100C ONLY
R987 0
D901 UMN11N
C991 0.1 (B)
C992 22/6.3
IC991 TC74HC4053AFT
R991 0
R992 0
1Y
0Y
1Z
Z-COM
0Z
INH
VEE
GND
VCC
Y-COM
X-COM
1X
0X
A
B
C
DASW0
DASW1
R995 10K
R997 10K
R998 18K
R996 18K
DGND
DA.LRCK
DA.BCK
DACCLK
FB901 R301A
R901 0
AL5V
AL3.3V
AL11V
L901 2012 ZLC
R982A 16 P4500 ONLY
R982B 68 P4000.P4100 ONLY
IC901 BA05FP
VCC
NC1
GNDFIN
NC2
OUT
D902 1SS355
D903 1SS355
C901 1(F)
C902 10/16 P4500 ONLY
C903 10/16
C904 1(B)
R905 0
R906 0
XDARST
XDACS3
XDACS2
XDACS1
XDACS0
XDAMUTE0
XDAMUTE1
DACMD
DACMC
DACML
IC911 PCM1735E
IC931 PCM1735E
IC951 PCM1735E
IC971 PCM1735E
LRCK
DATA
BCK
CLKO
XTI
XTO
DGND
VDD
VCC2R
AGND2R
EXTR
NC
VOUTR
AGND1
ML
MC
MD
XMUTE
MODE
XCS
XRST
XZEROL
VCC2L
AGND2L
EXTL
XZEROR
VOUTL
VCC1
AGND
R990 0
R989 0
R913 0
R914 0
R915 4.7K
R916 4.7K
R917 0.1(B)
R918 4.7/35
R919 10/16
R920 0
R921 0
R922 0
R923 0
R933 0
R934 0
R935 4.7K
R936 4.7K
R937 0.1(B)
R938 4.7/35
R939 10/16
R940 0.1(B)
R941 100/6.3
R953 0
R954 0
R955 4.7K
R956 4.7K
R957 0.1(B)
R958 4.7/35
R959 10/16
R960 0.1(B)
R961 100/6.3
R973 0
R974 0
R975 4.7K
R976 4.7K
R977 0.1(B)
R978 4.7/35
R979 10/16
R980 0.1(B)
R981 100/6.3
C911 4.7/35
C912 0.1(B)
C915 10/16
C931 4.7/35
C932 0.1(B)
C935 10/16
C951 4.7/35
C952 0.1(B)
C955 10/16
C971 4.7/35
C972 0.1(B)
C975 10/16
FB911 R301A
FB912 R301A
FB913 R301A
FB914 R301A
DZFML
ML
DZFMR
MR
AGND
FB931 R301A
FB932 R301A
FB933 R301A
FB934 R301A
FB951 R301A
FB952 R301A
FB953 R301A
FB954 R301A
FB971 R301A
FB972 R301A
FB973 R301A
FB974 R301A
R926
R927
R928
R929
R930
P804 24FLT-SM1
NC 24
NC 23
NC 22
NC 21
NC 20
AGND 19
DZFL 18
L 17
AGND 16
R 15
DZFR 14
AGND 13
DZFSL 12
SL 11
AGND 10
SR 9
DZFSR 8
AGND 7
DZFC 6
CENTER 5
AGND 4
SUBW 3
DZFSUBW 2
AGND 1
Not for DV4000
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/10W( )
ALL CAPACITORS IN μF WV(P=pF)
ALL INDUCTORS IN μH( )
D6008A5010 PC MAIN(C3) A-DAC BLK

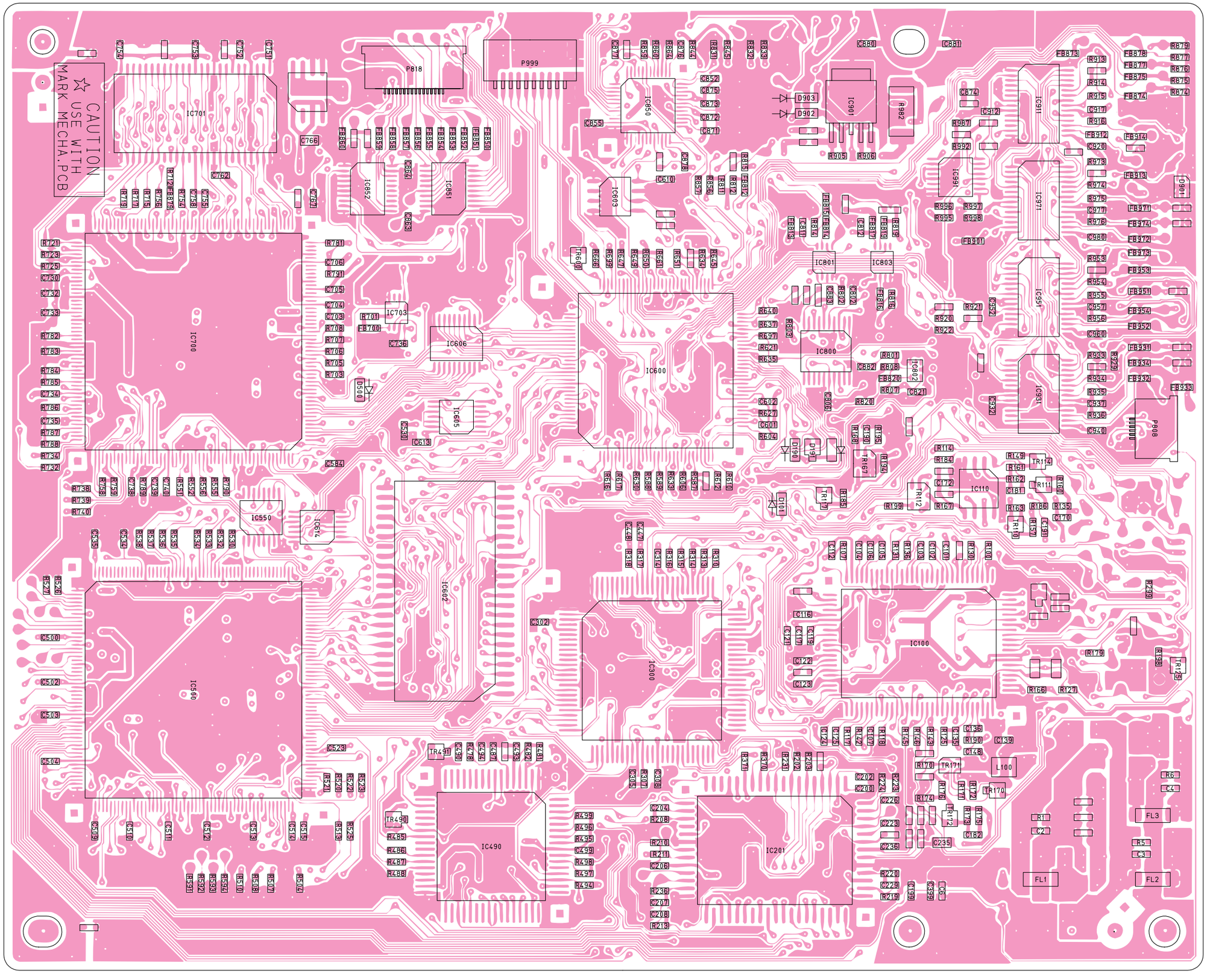
MAIN TOP VIEW

TR113
TR100 ~TR106
IC111 TR120
TR115
IC122 IC121 IC120
TR201 TR202
TR802 TR801
TR804 ~TR806
TR190 IC202 IC203
TR300
TR200 IC311
IC607
IC507 IC503
IC610 ~IC613
TR500
IC502
IC702
IC501

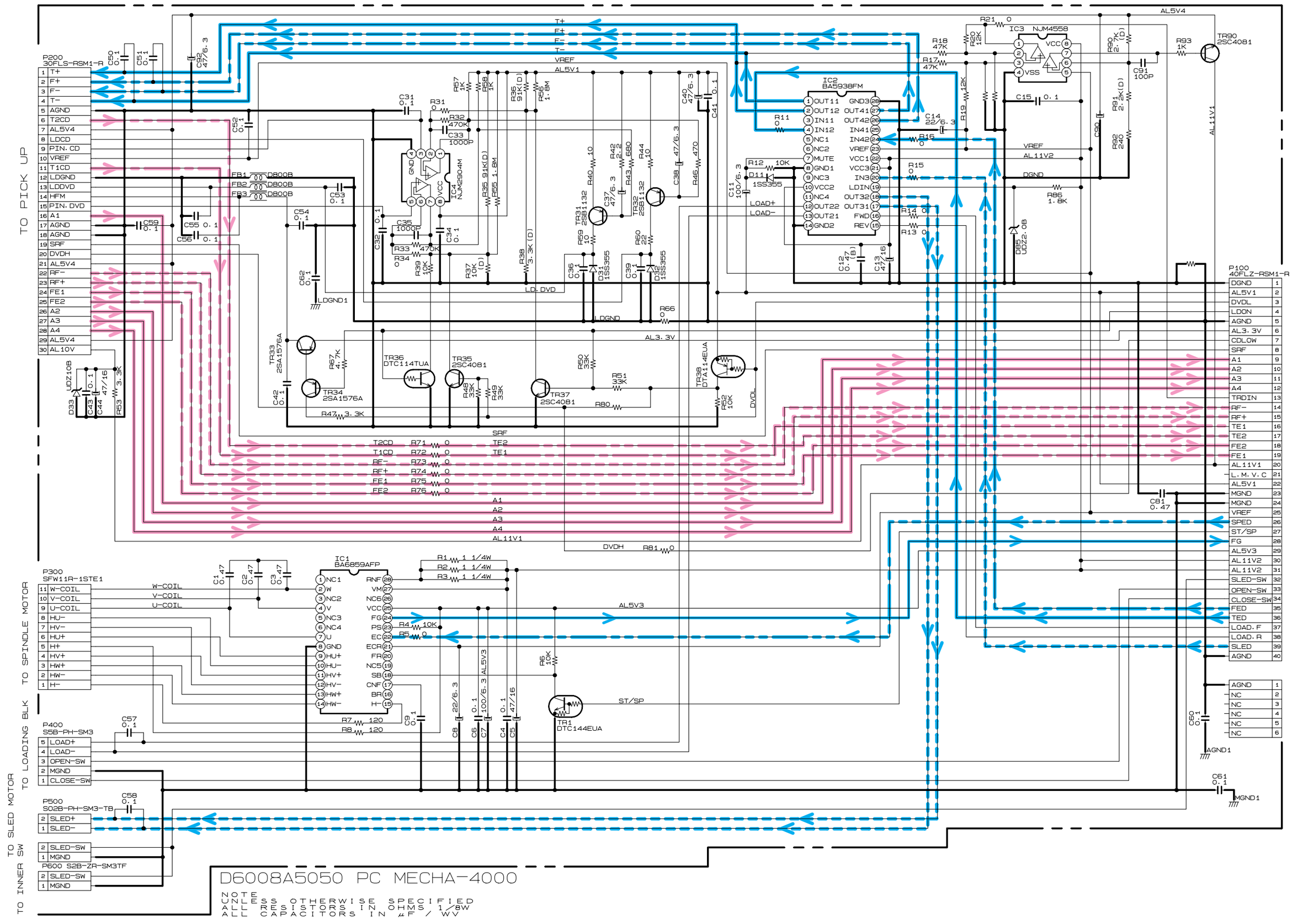


MAIN BOTTOM VIEW

IC701 IC700 IC500 IC550 IC614 IC852 IC851 IC606 IC703 IC602 IC605 TR490 TR491 IC490 IC850 IC600 TR600 IC603 IC300 IC201 IC801 IC901 IC800 IC803 IC802 IC991 TR112 IC110 IC100 TR170 ~TR712 IC911 IC971 TR114 IC951 TR111 IC931 TR110 TR125



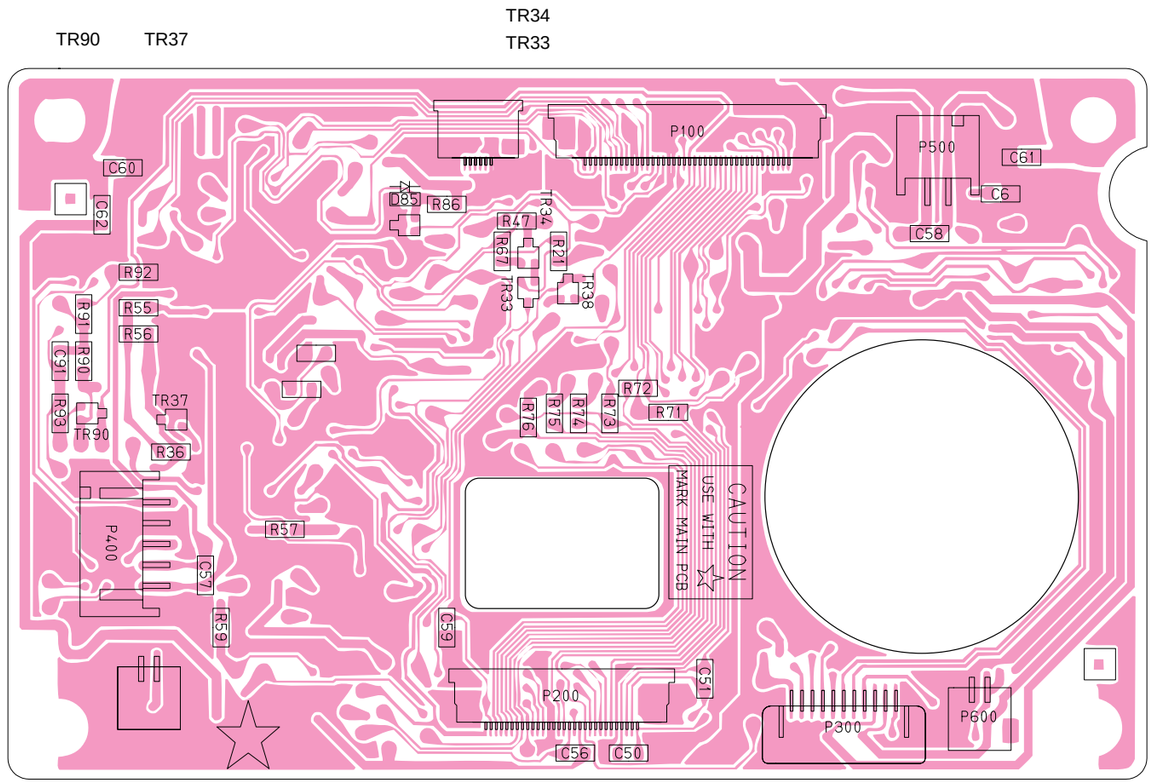
MECHA



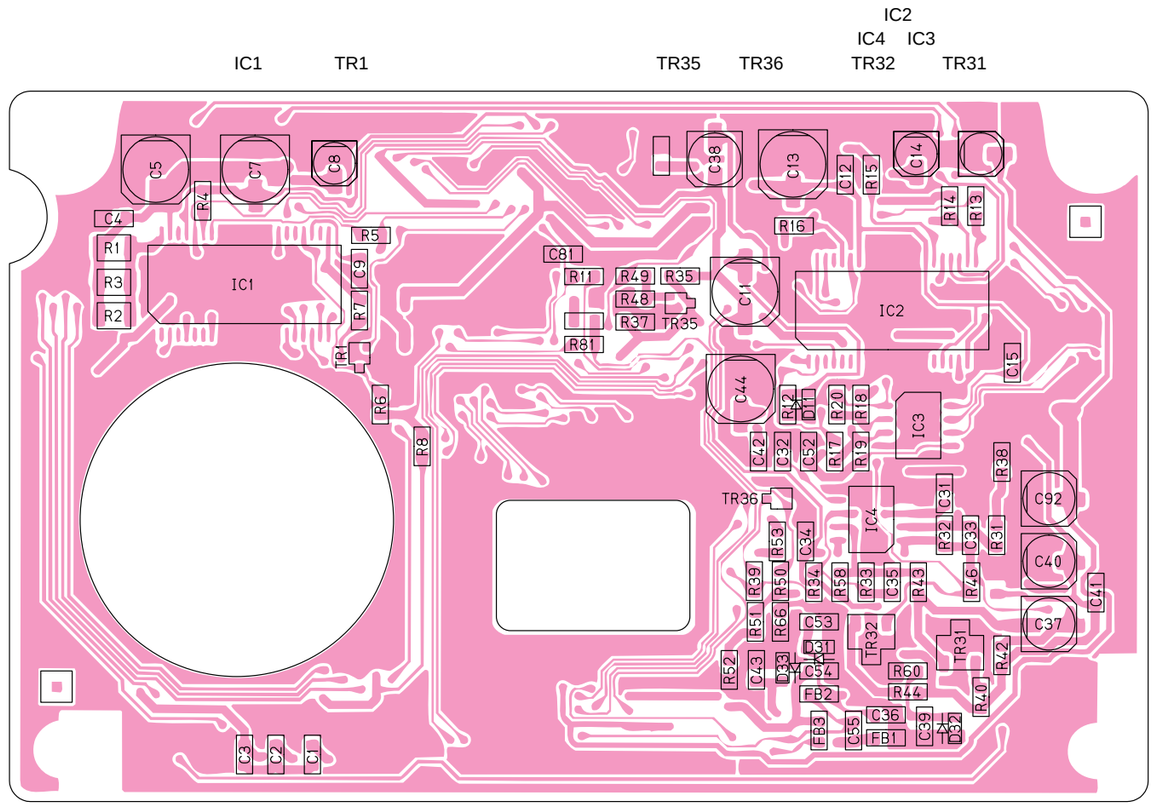
D6008A5050 PC MECHA-4000

NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/8W
ALL CAPACITORS IN μF / WV

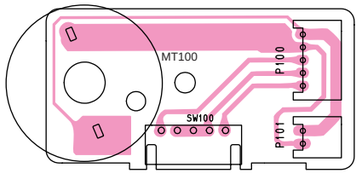
MECHA TOP VIEW



MECHA BOTTOM VIEW

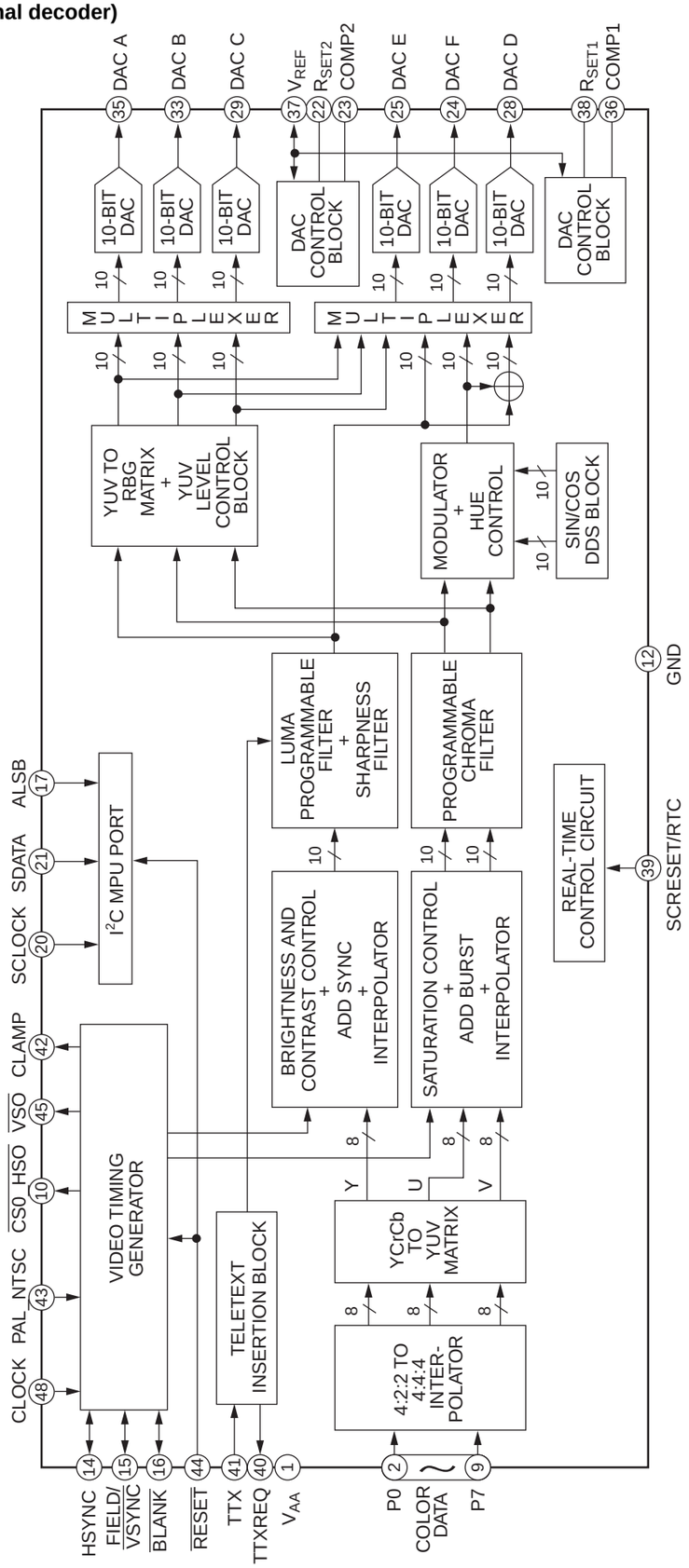


LOADING

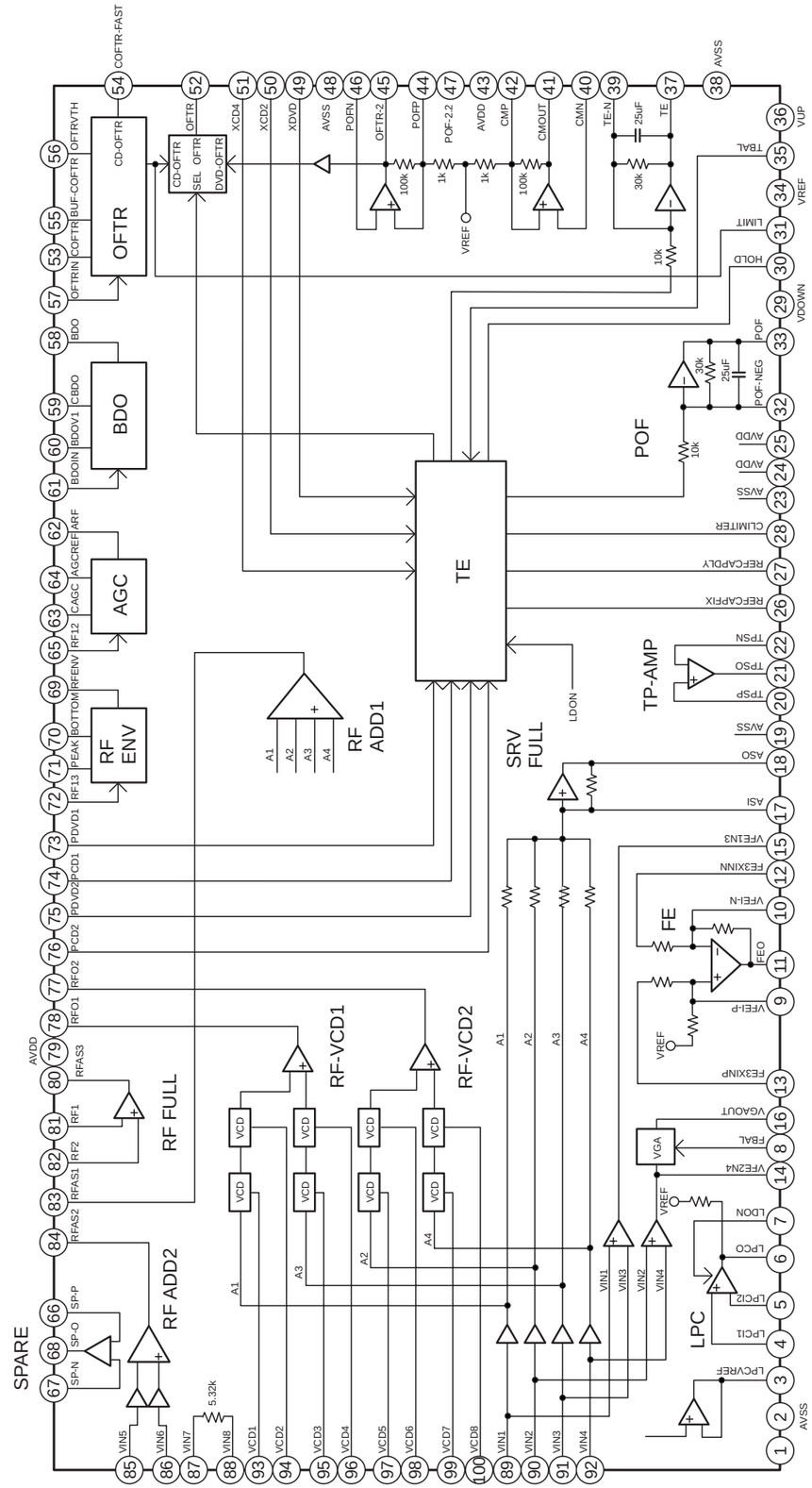


16. MICROPROCESSOR AND IC DATA

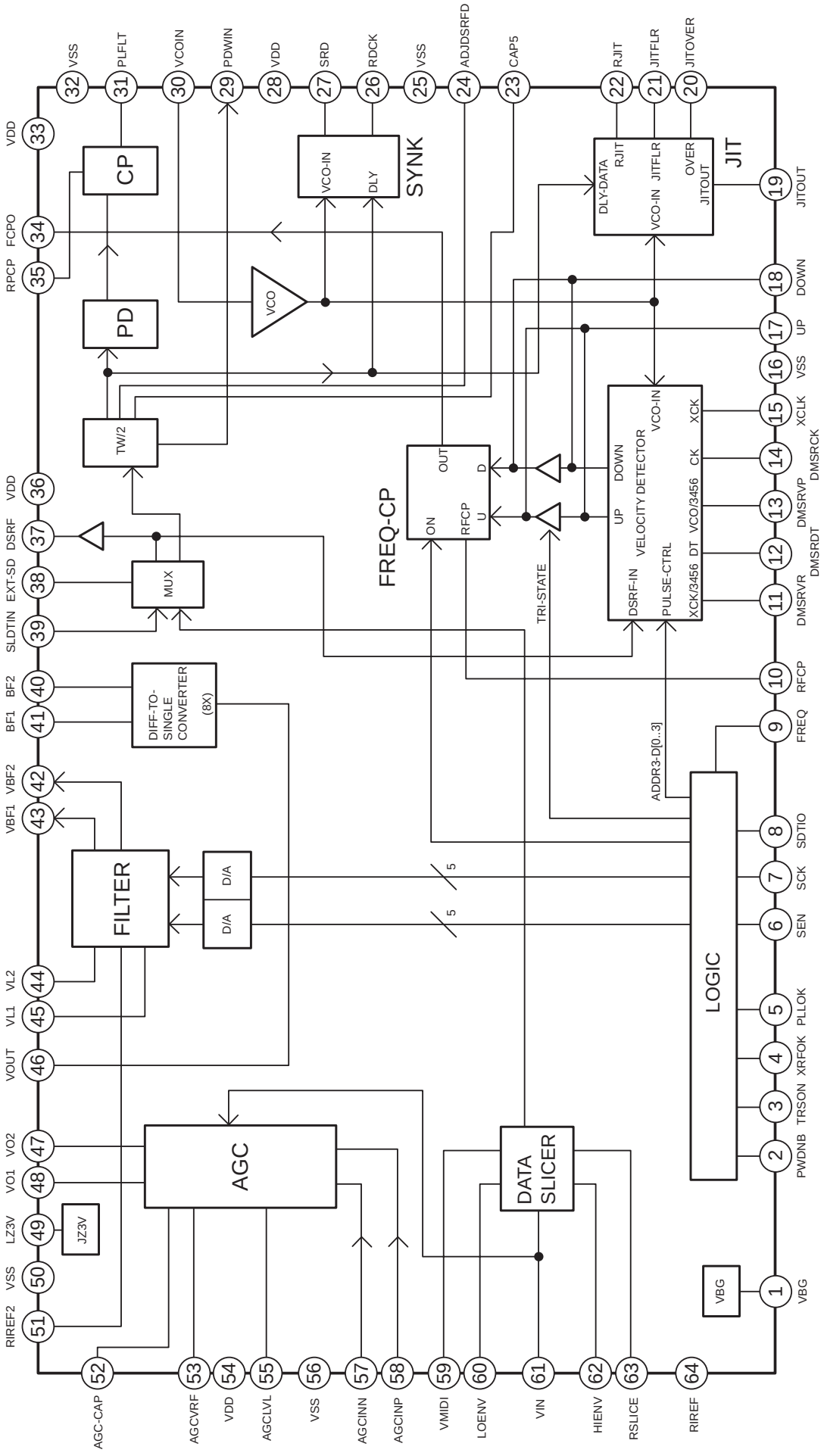
ADV7172 (Video signal decoder)



CYC11AP000 (DVD Pre AMP)



CYC12MP000(DVD Read Channel)

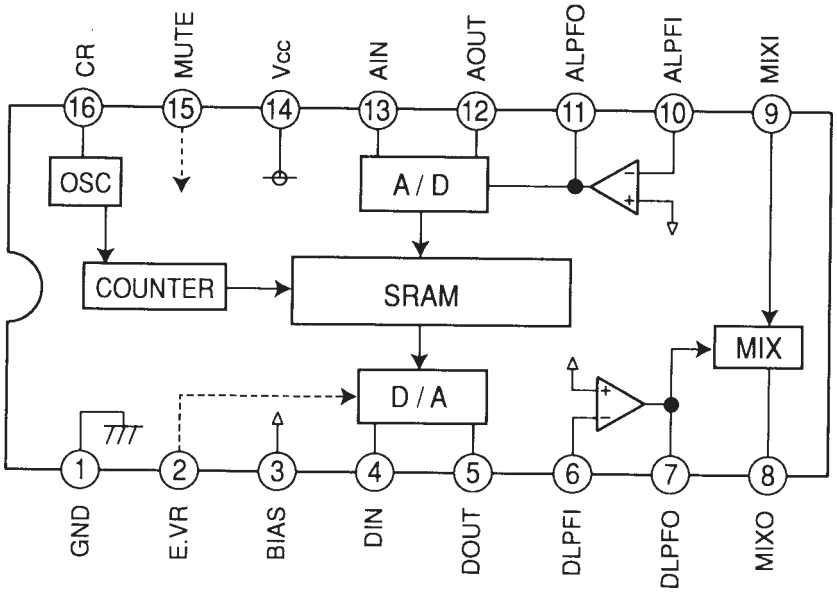


MB90574 (CPU/System control MI-COM)

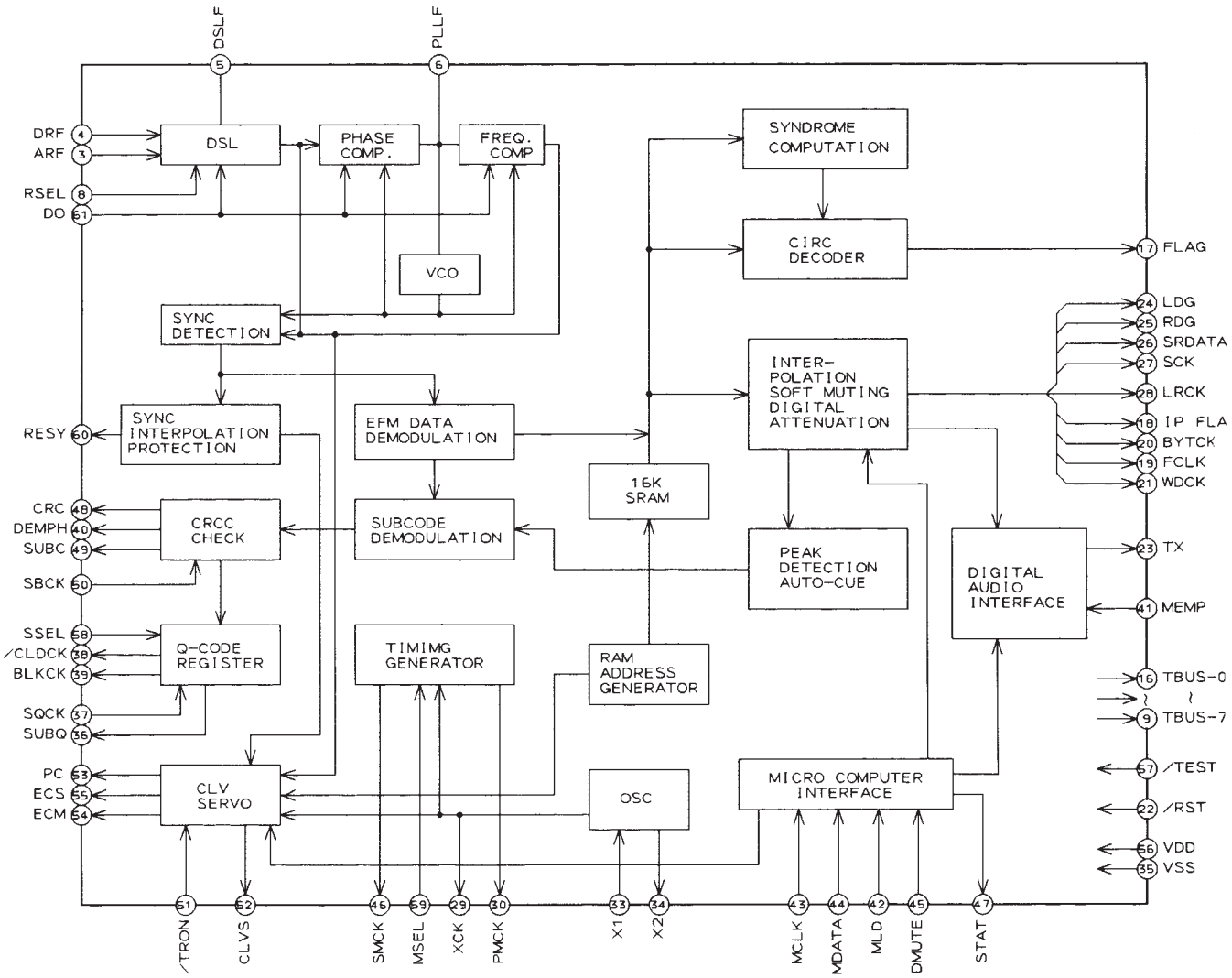
Pin No.	Port Name	I/O	FUNCTION
1	RDX	O	System bus read strobe signal output.
2	WEX	O	System bus lower 8 bit write strobe signal output.
3	BOOT	O	Ziva MI-COM transmission control output.
4	CDLOW	O	Disc judge output.
5	LD.SW1	O	Laser control output 1.
6	RDY	I	System bus ready input.
7	LD.SW2	O	Laser control output 2.
8,54,94	Vcc	–	+5 V power supply pin.
9-11,21,23, 56	N.C	–	No connection.
12	OPE.DOUT	I	Serial data input from the output control MI-COM.
13	OPE.DIN	O	Serial data output to the output control MI-COM.
14	OPE.CLK	I	Serial clock input from the output control MI-COM.
15	SLI.LV	O	PWM output for data slice level control of the read channel MI-COM.
16	L.M.V.C	O	PWM output for disc changer tray rotation control.
17	XAVRST	O	Reset control output for the Ziva-3 MI-COM.
18	SYS.XBSY	O	Serial data ready/busy output to the output control MI-COM.
19	DVD.L	O	DVD/CD laser select control output.
20	SUBQ	I	CD-DSP Q data input.
22	SQCK	O	Clock output for CD-DSP Q data.
24	CRCOK	I	Sector ID error O.K. input.
25	XCHANGER	I	Disc changer operation setting pin.
26	XDAMUTE0	O	Audio section mute control output. (L: mute on)
27	ICESEL	O	IEC958 digital out select output. (L: Ziva, H: CD)
28	XDAMUTE1	O	Audio section mute control output. (L: mute on)
29	CLKSEL1	O	Clock generator SRO control output. (L: normal, H: double)
30	CLKSEL2	O	Clock generator FSO control output. (L: 48 kHz, H: 44.1 kHz)
31	SYSRST	O	System reset output.
32	DRPOUT	I	Drop out input.
33,63,91,119	Vss	–	Ground pin.
34	C	–	Capacitor connecting pin.
35	PAL/NTSC	O	Video decoder PAL/NTSC select output.
36	ENRST	O	Video encoder IC reset output.
37	XDARST	O	DAC reset output.
38	DVcc	–	+5 V power supply pin for digital circuit.
39	DVss	–	Ground pin for digital circuit.
40	FCSBAL	I	Focus balance adjustment input.
41	TRKBAL	I	Tracking balance adjustment input.
42	Avcc	–	+5 V power supply pin for analog circuit.
43	AVRH	I	Connect to +5 V.
44	AVRL	I	Connect to ground.
45	Avss	–	Ground pin for analog circuit.
46	TE	I	A/D input for disc judge signal 1 (Tracking error).
47	RFENV	I	A/D input for disc judge signal 2 (RF envelope).
48	FE	I	A/D input for disc judge signal 3 (Focus error).
49	JIT.OUT	I	A/D input for jitter out.
50	DASW1	O	Audio DAC L/R channel input data select control output.
51	DACML	O	Audio DAC serial latch output.
52	DACMC	O	Audio DAC serial clock output.
53	DACMD	O	Audio DAC serial data output.
55	DASW0	O	Audio DAC mix channel input data select control output.
57	DEC.CS	O	Ziva MI-COM chip select output.
58	XDACS1	O	Audio DAC (L/R) chip select output.
59	XDACS2	O	Audio DAC (SL/SR) chip select output.
60	XDACS3	O	Audio DAC (C/SUBW) chip select output.
61	XDACS0	O	Audio DAC (MIXL/MIXR) chip select output.
62	CHG.V.C	O	Disc changer motor control output.
64	DISC.CHK	I	Disc judge assist.
65	XMULTI	I	2 CH/XMULTICH setting control input.
66	DASW2	O	Four audio DAC test mode input data select.

Pin No.	Port Name	I/O	FUNCTION
67	AVRTM	I	ECC interruption request input (end of output stream of 2060 bytes data) .
68,69	DGND	–	Ground for digital section.
70	SDA(I2C)	I/O	Serial data in/out from/to EEP-ROM & video encoder.
71	SCL	O	Serial clock output to the EEP-ROM & video encoder.
72	STAT	I	CD-DSP status input.
73	X0A	I	Not used.
74	X1A	O	Not used.
75	XSRTM	I	ECC interruption request input (end of block signal).
76	XINT.DEC	I	Interruption request from the Ziva MI-COM.
77	XINT.SER	I	Interruption request from the servo MI-COM.
78	OPEN-SW	I	Disc tray open detect input pin.
79	CLOSE-SW	I	Disc tray close detect input pin.
80	CLAMP-SW	I	Disc changer tray position detect input pin.
81	PHOT-IN	I	Disc changer tray position detect photo sensor input pin.
82	LOAD.F	O	Loading motor direction control output.
83	LOAD.R		
84	CHG.M.R	O	Disc changer motor control output.
85	CHG.M.L		
86	HSTX	I	hardware standby pin. (Pulled up)
87-89	MD0-MD2	I	Bus mode setting pins.
90	RSTOUT	I	Reset signal input from the output control MI-COM.
92	X0	I	4 MHz crystal connecting pin.
93	X1	O	
95-102	HAD00-HAD07	I/O	System bus serial data/address I/O pins.
103-116	HA08-HA21	O	System bus address output pins.
117,118	HA22,HA23	O	System bus address output pins for chip select circuit.
120	ALE	O	System bus address latch enable output.

BU9253 (Digital delay)



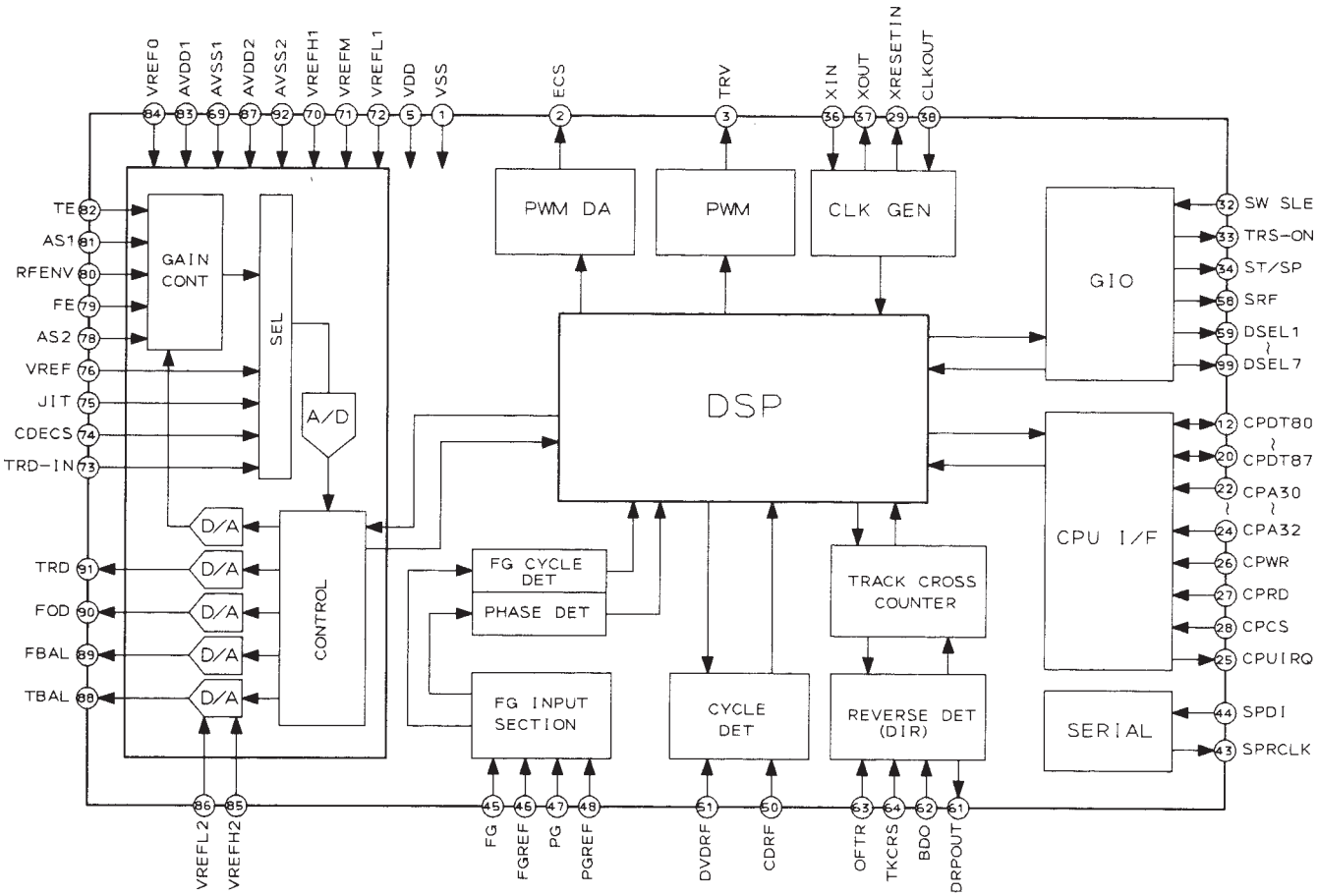
MN66261 (CD signal processing)



MN66261 (CD signal processing)

PIN No.	PORT NAME	I/O	FUNCTION
1	Avss	–	Ground pin for DSL, PLL circuit.
2	IREF	I	Reference current input pin.
3	ARF	I	RF signal input pin.
4	DRF	–	Bias pin for DSL.
5	DSLF	O	Loop filter pin for DSL.
6	PLLF	I/O	Loop filter pin for PLL.
7	Avdd	–	+5 V power supply pin for DSL, PLL.
8	RSEL	–	RF signal polarity setting pin. (Brightness level: H →¨RSEL: H)
9-16	TBUS0 - 7	O	Test pins. Normally, these pins are open circuit.
17	FLAG	O	Flag output pin.
18	IPFLAG	O	Interpolation flag pin. (H: interpolate)
19	FCLK	O	Frame clock output (from crystal OSC). (fCLK = 7.35 kHz, 14.7 kHz when dubble speed)
20	BYTCK	O	Byte clock out.
21	WDCK	O	Word clock out.
22	/RST	I	Reset input pin (L: reset).
23	TX	O	Digital audio interface output.
24	LDG	O	L-CH deglitch signal output.
25	RDG	O	R-CH deglitch signal output.
26	SRDATA	O	Serial data output.
27	SCK	O	Bit clock output for SRDATA.
28	LRCK	O	Left-right discrimination clock output.
29	XCK	O	Crystal OSC clock output (fXCK = 16.9344 MHz).
30	PMCK	O	1/192 counted down clock signal from the crystal OSC. (fPMCK = 88.2 kHz)
31	CSEL	I	Crystal OSC frequency select pin. (L: 16.9344 MHz, H: 33.8688 MHz)
32	PSEL	–	Test pin (normally, open circuit).
33	X1	I	Crystal connecting pin. (f = 16.9344 MHz or 33.8688 MHz)
34	X2	O	Crystal connecting pin. (f = 16.9344 MHz or 33.8688 MHz)
35	Vss	–	Ground pin.
36	SUBQ	O	Subcode Q output.
37	SQCK	I	External clock input for subcode Q register.
38	/CLDCK	O	Subcode frame clock signal output. (fCLDCK = 7.35 kHz in normal playback)
39	BLKCK	O	Subcode block clock signal. (fBLOCK = 75 Hz in normal playback)
40	DEMPH	O	De-emphasis control output. (H: de-emphasis on)
41	MEMP	I	Emphasis signal input for digital audio interface.
42	MLD	I	MI-COM command LOAD signal input. (L: LOAD)
43	MCLK	I	MI-COM command CLOCK signal input. (Data will be latched with rising edge of the pulse)
44	MDATA	I	MI-COM command DATA input.
45	DMUTE	I	Muting input.
46	SMCK	O	1/2 counted down crystal OSC signal output when MSEL = H. 1/4 counted down crystal OSC signal output when MSEL = L.
47	STAT	O	Status signal output (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK).
48	CRC	O	Subcode CRC check output. (H: OK, L: no good)
49	SUBC	O	Subcode serial output data.
50	SBCK	I	Clock input for subcode serial output.
51	/TRON	I	Tracking servo on signal. (L: tracking on)
52	CLVS	O	Spindle servo phase synchronization judge output. (H: CLV, L: rough servo)
53	PC	O	Spindle motor on signal (L = on).
54	ECM	O	Spindle motor drive signal output (forced mode, 3-state).
55	ECS	O	Spindle motor drive signal output (servo error signal, 3-state)
56	Vdd	–	+5 V power supply.
57	/TEST	I	Test pin (normally, H).
58	SSEL	I	Output mode select pin for SUBQ pin. (H: Q-code buffer is used)
59	MSEL	I	Output frequency select pin for SMCK pin. (H: SMCK = 8.4672 MHz, L: 4.2336 MHz)
60	RESY	O	Re-synchronization signal of the frame synchronization signal. (H: synchronized, L: not synchronized)
61	DO	I	Drop out signal (H: drop out)
62	EFM	O	EFM signal output.
63	PCK	O	PLL extraction clock output. (fPCK = 4.3218 MHz in normal playback)
64	PDO	O	Phase comparison signal between EFM and PCK signal.

MN67700 (Servo processing IC)



MN67700 (Servo processing IC)

PIN No.	PORT NAME	I/O	FUNCTION
1	Vss	–	Ground pin for digital circuit.
2	ECS	O	Spindle motor drive signal output.
3	TRV	O	Traverse (sled motor) drive signal output.
4,6-11	N.C	–	No connection.
5,21,39,55	Vdd	–	Power supply for digital circuit.
12-15,17-20	CPDT80-87	I/O	CPU I/F data I/O pins.
16,35,60	Vss	–	Ground for digital circuit.
22-24	CPA30-32	I	CPU I/F address input pins.
25	CPUIRQ	O	CPU interruption signal output.
26	CPWR	I	CPU I/F write strobe input pin.
27	CPRD	I	CPU I/F read strobe input pin.
28	CPCS	I	CPU I/F chip select input pin.
29	XRESETIN	I	Reset signal input. (L: reset)
30	CRCOK	I	ID check signal input pin from the DEM/ECC MI-COM.
31	GIO01	–	No connection.
32	SW SLE	I	Traverse innermost position detect signal input.
33	TRS-ON	O	Tracking servo on signal. (H: tracking servo on)
34	ST/SR	O	Spindle motor drive (start/stop) control output (H: start).
35	Vss	I	Ground for digital circuit.
36	XIN	I	Crystal connecting pin (40 MHz).
37	XOUT	O	Crystal connecting pin (40 MHz).
38	CLKOUT	O	Clock output (1/2 counted down of the crystal OSC).
40	SPEN	O	Serial enable output pin.
41	SPWCLK	O	Serial write signal synchronization clock.
42	SPDO	O	Serial data output pin.
43	SPRCLK	O	Serial clock output pin.
44	SPDI	I	Serial data input pin.
45	FG	I	FG signal input pin.
46	FGREF	I	FG reference signal input pin.
47	PG	I	PG signal input pin. (VCO/3456 XCK = 27 MHz)
48	PGREF	I	PG reference signal input pin. (XCK/3456 XCK = 27 MHz)
49,56,57,77	N.C	–	No connection.
50	CDRF	I	CD-RF signal input.
51	DVDRF	I	DVD-RF signal input.
52-54	MON0-2	O	Internal monitoring signal.
58	SRF	O	Head AMP gain select control .
59,66 95-99	DSEL1-7	O	VCD setting pins.
61	DRPOUT	O	Drop out signal output. (H: drop out)
62	BDO	I	Black drop out signal input. (H: black drop out)
63	OFTR	I	Off track signal input. (H: off track)
64	TKCRS	I	Track cross signal input pin.
65	RSV1	I	Test pin (normally open).
67	RSVO	I	Test pin (normally open).
68	TESTA	I	Test mode setting pin (normally open).
69	Avss1	I	Ground for analog circuit.
70	VREFH1	I	AD high level reference voltage input pin (3.75 V).
71	VREFM	I	AD middle reference voltage input pin (2.5 V).
72	VREFL1	I	AD low level reference voltage input pin (1.25 V).
73	TRD-IN	I	Tracking drive voltage input pin. (This pin is connected to 91 pin.)
74	CDECS	I	CD spindle motor drive signal input.
75	JIT	I	Jitter level signal input.
76	VREF	I	Reference voltage input.
78	AS2	I	PD all addition signal input.
79	FE	I	Focus error signal input.
80	RFENV	I	RF envelope signal input.
81	AS1	I	Addition signal of inner 4 divided PD.
82	TE	I	Tracking error signal input.
83	AVdd1	I	Power supply for analog circuit.
84	VREF0	I	Analog reference voltage input (2.5 V).
85	VREFH2	I	Analog high level reference voltage input pin (3.75 V).
86	VREFL2	I	Analog low level reference voltage input pin (1.25 V).
87	AVdd2	I	Power supply for analog circuit.
88	TBAL	O	Tracking balance adjust output.
89	FBAL	O	Focus balance adjust output.
90	FOD	O	Focus drive signal output.
91	TRD	O	Tracking drive signal output.
92	AVss2	I	Ground pin for analog circuit.
93	TESTD	I	Test mode setting pin (normally open).
94	MINTST	I	Test mode setting pin (normally open).
100	PWMCTL	I	PWM output control signal input (normal: L).

YMC13D000 (DVD Sync/ECC/Formatter)

Pin No.	Port Name	I/O	FUNCTION
1,12,26,35,46, 52,63,73,81, 95,105,118, 131,142,156, 170,182,195	VSS1-18	–	Ground pins.
2	SEL0	–	Test mode select pins.
3	SEL1		
4-6,8,10,10 11,14-22,28 29,116,117 119,125,126 132,171-174 194,197-206	TEST9-46	–	Test mode output pins. (Leave them open)
7	AVRTM	O	End of output stream of 2060 bytes data to CSS.
9	XSRTM	O	End of block signal.
13,25,33,45,53, 62,72,140,157, 169,196,208	VDD5-1to 5-12	–	+5 V power supply pin.
23	MLD	O	Microprocessor command load signal for CD-DA section. (L: load).
24	MCLK	O	Microprocessor command clock signal for CD-DA section. (data is atched on rising edge)
25	VDD5-2	–	+5 V power supply pin.
26	VSS3	–	Ground pin.
27	MDATA	O	Microprocessor command data for CD-DA section.
30	DEMPH	I	De-emphasis control input (H: on).
31	DMUTE	O	Muting output for CD-DA section.
32	STAT	I	Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK) from CD-DA, STAT also goes to CPU.
34	PLLCLK	I	27 MHz clock input pin.
36	CHNDATA	I	Inverted bit data, which is changed on the falling edge of PLLCLK.
37	SDTIO	I/O	Serial bit data I/O.
38	ASPSCK	O	296ns clock (27 MHz/8) output.
39	SEN	O	High enable CPU to write data to 8 read-channel registers.
40	PLLOK	O	DVD frame sync (H: O.K)
41	LDON	O	Turn on the Laser diode.
42	XDVD	O	DVD mode control output.
43	XCD2	O	2X CD mode control output.
44	XCD4	O	4X CD mode control output.
47-51,54-56	SRMDT0-7	I/O	SRAM data bus.
57-61,64-71 74-77	SRMADR0-16	O	SRAM address bus.
78	XSRMCE	O	Chip enable signal to SRAM.
79	XSRMOE	O	Output enable signal to SRAM.
80	XSRMWE	O	Write enable signal to SRAM.
83-90	SDMDT0-7	I/O	SDRAM data bus.
91-93 96-103,106	SDMADR0-11	O	SDRAM address bus.
107	$\overline{\text{SDMRAS}}$	O	SDRAM row address strobe output.
108	$\overline{\text{SDMCAS}}$	O	SDRAM column address strobe output.
109	$\overline{\text{SDMWE}}$	O	SDRAM write enable output.
110	SDMDQML	O	SDRAM lower byte input/output mask.
111	SDMCLK	O	Clock signal output to SDRAM.
112	$\overline{\text{SDMCS}}$	O	SDRAM chip select control.
113	SDMDQML	O	SDRAM upper byte input/output mask.
115	SDMCKE	O	SDRAM clock enable.
120	XDSCO	O	Chip select signal to the SERVO MI-COM.
121	CRCOK	O	Sector IDs are O.K.
122-124	CPUADR0-2	O	(Video/Audio) HAL [2:0], V/A decoder, CPU address bus.

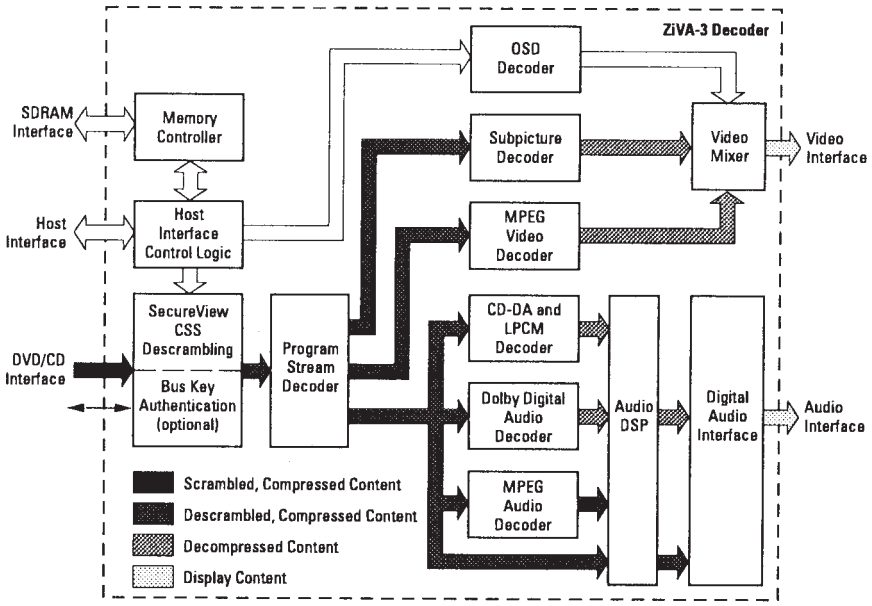
Pin No.	Port Name	I/O	FUNCTION
127-130 133-139 143-147	CPUADT0-15	I/O	CPU address/data bus.
141	XRESET	I	Global reset input.
148-152	CPUADT16-20	I	CPU address bus.
153	XALE	I	Address latch enable input.
154	XRE	I	Read strobe.
155	XINTO	O	ECC interrupt request.
158	XWEH	I	Write strobe signal.
159	XWAIT	O	CPU wait state control.
168	XHSTCS	O	Decipher chip select.
176	STENABLE	I	Stream data request.
177-181 185-187	STD0-7	O	Output stream data bus.
183	GENCLK	I	27 MHz clock input.
188	STCLK	O	Output stream data transfer clock, falling edge active, 6.75 MHz.
189	STVALID	O	Output stream data valid.
190	XVCS	O	Latched video decoder chip select.
191	XVDS	O	CPU read/write strobe.
192	HRXW	O	CPU write strobe, XWEH
193	ASCK	O	Latched audio decoder chip select.
207	SELCPU	I	1: data corresponds to CPUADT15-8. 0: data corresponds to CPUADT7-0.

ZIVA-3 (Advanced DVD decoder with integrated Audio DSP)

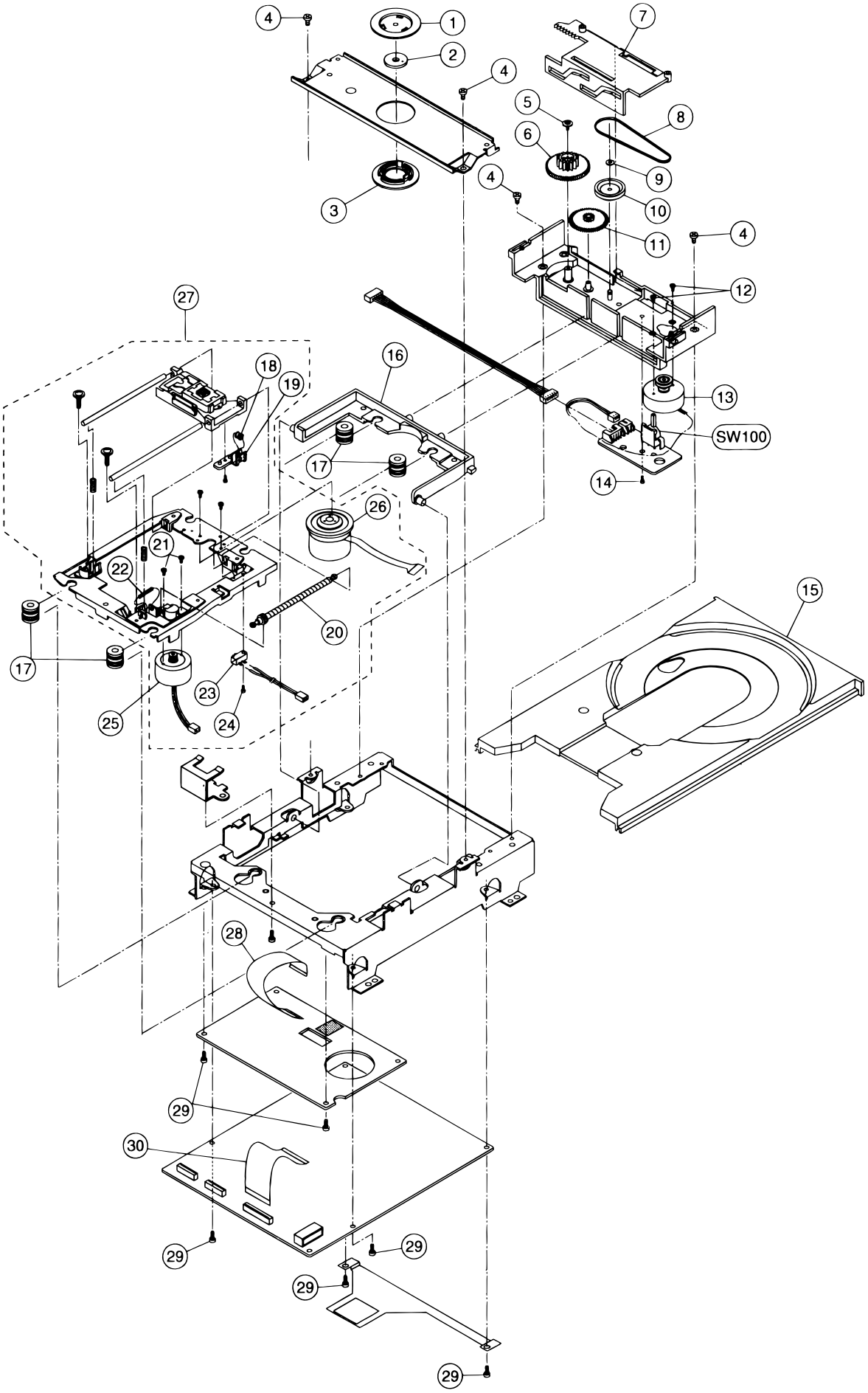
Pin No.	Port Name	I/O	FUNCTION
1,52,129 133,138,141 147,153,156 174,190	PIO0-10	I/O	Programmable I/O pins.
2-4,6,8-11	HDATA0-7	I/O	8 bit bi-directional host data bus.
5,12,17,27 36,40,47,55 61,65,69,75 81,87,91.95 101,107,113 117,123,134 149,160,181 193	VDD1-29	–	+3.3 V power supply pins.
7,14,19,29 38,42,49,57 63,67,71,77 83,89,93,97 103,109,115 119,125,136 146,151,162 170,183,195 199	VSS1-29	–	Ground pins.
13	$\overline{\text{RESET}}$	I	Hardware reset pin.
15	$\overline{\text{WAIT}}$/$\overline{\text{DTACK}}$	O	Transfer not complete / data acknowledge.
16	INT	O	Host interrupt.
21-26,28,30	HDATA8-15	I/O	Programmable I/O pins. Input mode after reset.
31-35,37,39 41,43-46	HADDR12-23	I/O	Programmable I/O pins. Output mode after reset.
51,130	NC	–	No connection.
53,54,56,58 59,60,62,64 66,68,70,72 73,74,76,78	MDATA0-15	I/O	Memory data.
79	LDQM	O	SDRAM LDQM.
80	UDQM	O	SDRAM UDQM.
82	$\overline{\text{MWE}}$	O	SDRAM write enable.
84	SD-CLK	O	SDRAM system clock.
85	$\overline{\text{SD-CAS}}$	O	Active low SDRAM column address.
86	SD-RAS	O	Active low SDRAM row address.
88,90	SDCS0,1	O	Active low SDRAM bank select.
92	EDO-CAS	O	EDO column address (Not used).
94	EDO-RAS	O	EDO row address (Not used).
96,98-100 102,104-106 108,110-112	MADDR0-11	O	Memory address output.
114,115,116 120-122,124 126,127	HADDR3-11	O	Memory address output (not used).
128	ROM-CS	O	Not used.
131,132,135 137,139,140	VDDA-F	–	Connect to +3.3 V power supply line.
142,143,145 148,150,152 154,155	VDATA0-7	O	Video data bus.
157	HSYNC	I/O	Horizontal sync.
158	VSYNC	I/O	Vertical sync.
159	DA-IEC	O	Bit stream data in IEC-1937 or PCM data out in IEC-958 format.
161,163-165	DA-DATA0-3	O	PCM data out, eight channels. Serial audio samples relative to DA-BCK clock.

Pin No.	Port Name	I/O	FUNCTION
166	DA-LRCK	O	PCM left/right clock. Identifies the channel for each audio sample.
167	DA-BCK	O	PCM bit clock output.
169	DA-XCK	I/O	Audio master frequency clock.
171	DAI-DATA	I	PCM input DATA (not used).
172	DAI-LRCK	I	PCM input LRCK (not used).
173	DAI-BCK	I	PCM input BCK (not used).
175	CLKSEL	I	Clock select pin. (H: internal, L: external)
176	A-VDD	–	+3.3 V power supply for analog section.
177	VCLK	O	Video clock. (27 MHz)
178	SYSCLK	I	System clock input. Decoder requires an external 27 MHz TTL oscillator.
179	A-VSS	–	Analog ground for PLL.
180	DVD-DATA0 /CD-DATA	I	Serial CD data.
182	DVD DATA1 /CD LRCK	I	DVD DATA1 input or CD-LRCK input.
184	DVD-DATA2 /CD BCK	I	DVD DATA2 input or CD bit clock input.
185	DVD-DATA3 /CD-C2PO	I	DVD DATA3 input. Asserted HIGH indicates a corrupted byte.
186-189	DVD-DATA4-7 CDG 4-7	I	DVD parallel compressed data from DVD DSP or CDG-SDATA/ VSFY/S0S1/SCLK signal input.
191	VREQUEST	O	Video request. Decoder asserts VREQUEST to indicate that the video input buffer has available space.
192	VSTROBE	I	Video strobe signal input.
194	AREQUEST	O	Audio request. Decoder asserts AREQUEST to indicate that the audio input buffer has available space.
196	V-DACK	I	Video data acknowledge (in synchronous mode). Asserted when DVD is valid.
198	A-DACK	I	Audio data acknowledge.
200	ERROR	I	Error in input data. If error signal is not available from the DSP, it must be grounded.
202-204	HADDR0-2	I	Host address bus. 3-bit address bus selects one of eight host interface registers.
205	DTACKSEL	I	Tie HIGH to select WAIT signal, LOW to select DTACK signal. (Motorola 68 K mode)
206	CS	I	Host chip select. Host asserts CS to select the decoder for a read or write operation.
207	R/W	I	Read/write strobe in M mode. Write strobe in I mode. Host asserts R/W LOW to select write and LOW to select read.
208	RD	I	Read strobe in I mode. Must be held HIGH in M mode.

ZIVA-3 (MPEG AV decoder)



17. EXPLODED VIEW AND PARTS LIST (TKM1000MZ)



(VERS. :VERSION, U:U.S.A., F:JAPAN, K:FAR EAST, **:EUROPE)

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)
1		9965 000 04593	PLATE CLAMP	294W051010
2		9965 000 04594	MAGNET	294W012010
3		9965 000 04595	DISC CLAMP	294W005010
4		nsp	ST PAN26X06STL CMT	nsp
5		nsp	PT PAN20X05STL CMT C060	nsp
6		9965 000 04596	GEAR LOAD 2	294W058010
7		9965 000 04597	SLIDER UD	294W360010
8		9965 000 04598	BELT LOADING	294W264010
9		nsp	SLIT W.21X050X050PSL	nsp
10		9965 000 04599	PULLEY GEAR	294W262010
11		9965 000 04600	GEAR LOAD 1	294W058020
12		nsp	PAN17X2.5STL BZN PS3	nsp
13		9965 000 04601	LOADING MOTOR PART	*MM001050R
14		nsp	BT BID30X08STL CMT	nsp
15		9965 000 04602	DISC TRAY	294W163010
16		9965 000 04603	HOLDER TRAVERSE	294W104010
17		9965 000 04604	INSULATOR	294W130010
18		9965 000 04605	SP PUSH HOOK	294W115010
19		9965 000 04606	HOOK L.S	294W258010
20		9965 000 04607	SHAFT SCREW PART	294W117010
21		nsp	PAN17X3.5STL CMT PS3	nsp
22		9965 000 04608	SP PUSH L.S	*SP000980R
23		9965 000 04609	SW MICRO MPU10420MLB0	*SM000330R
24		nsp	ST BID20X08STL CMT	nsp
25		9965 000 04610	SLED MOTOR PART	*MM001040R
26		9965 000 04611	MOTOR CDS8A50T30-A/TT	*MM001060R
27		nsp	CH TRAVERSE BLK TKM-002	nsp
28		9965 000 04612	FFC BD P0.5 L50 30P	*YU000610R
29		nsp	ST BID30X06STL NI3	nsp
30		9965 000 04613	FFC BD P0.5 L70 40P	*YU000600R
SW100		9965 000 04614	SW LEVER MXS01070MLB0 1-01-02S	*SC000670R
001A		9965 000 04619	DVD MODULE BLKTKM100MZ (PCB C3M1)	ZK370K0100

18. ELECTRICAL PARTS LIST (TKM1000MZ)

ASSIGNMENT OF COMMON PARTS CODES.

RESISTORS

R＊＊＊ : 1) GD05 x x x 140, Carbon film fixed resistor,±5% 1/4W
R＊＊＊ : 2) GD05 x x x 160, Carbon film fixed resistor,±5% 1/6W
① Resistance value

Examples
① Resistance value

0.1Ω	001	10Ω	100	1kΩ	102	100kΩ	104
0.5Ω	005	18Ω	180	2.7kΩ	272	680kΩ	684
1Ω	010	100Ω	101	10kΩ	103	1MΩ	105
6.8Ω	068	390Ω	391	22kΩ	223	4.7MΩ	475

Note : Please distinguish 1/4W from 1/6W by the shape of parts used actually.

CAPACITORS

C＊＊＊ : CERAMIC CAP.
3) DD1 x x x x 370, Ceramic capacitor
Disc type
Temp.coeff. P350~N1000, 50V
③ Capacity value
② Tolerance

Examples
② Tolerance (Capacity deviation)

±0.25 pF	0
±0.5 pF	1
±5 %	5

Tolerance of COMMON PARTS handled here are as follows :

0.5 pF - 5 pF	± 0.25 pF
6 pF - 10 pF	± 0.5 pF
12 pF - 560 pF	± 5 %

③ Capacity value

0.5 pF	005	3 pF	030	100 pF	101
1 pF	010	10 pF	100	220 pF	221
1.5 pF	015	47 pF	470	560 pF	561

C＊＊＊ : CERAMIC CAP.
4) DK16 x x x 300, High dielectric constant ceramic capacitor
Disc type
Temp.chara. 2B4, 50V
④ Capacity value

Examples
④ Capacity value

100 pF	101	1000 pF	102	10000 pF	103
470 pF	471	2200 pF	222		

C＊＊＊ : 5) ELECTROLY CAP.(⏚), 6)FILM CAP (⏤)
5) EA x x x x x x 10, Electrolytic capacitor
One-way lead type,Tolerance ±20%
⑥ Working voltage
⑤ Capacity value

Examples
⑤ Capacity value

0.1μF	104	4.7μF	475	100μF	107
0.33μF	334	10μF	106	330μF	337
1μF	105	22μF	226	1100μF	118
2200μF	228				

⑥ Working voltage

6.3 V	006	25 V	025
10 V	010	35 V	035
16 V	016	50 V	050

6) DF15 x x x 350 → Plastic film capacitor
DF15 x x x 310 → One-way type, Mylar ±5% 50V
DF16 x x x 310 → Plastic film capacitor
One-way type, Mylar ±10% 50V
⑦ Capacity value

Examples
⑦ Capacity value

0.001μF (1000 pF)	102	0.1μF	104
0.0018μF	182	0.56μF	564
0.01μF	103	1μF	105
0.015μF	153		

NOTE 1) The above CODES(R＊＊＊ ,R＊＊＊ ,C＊＊＊ ,C＊＊＊ and C＊＊＊) are omitted on the schematic diagram in some case.
2) On the occasion, be confirmed the common parts on the parts list.
3) Refer to “Common Parts List” for the other common parts**(RI05, DD4, DK4)**.

NOTE ON SAFETY FOR FUSIBLE RESIST OR :

The suppliers and their type numbers of fusible resistors are as follows ;

1 . KOA Corporation

Part No.(MJI)	Type No.(KOA)	Description
NH05 x x x 140	RF25S x x x x Ω	J ±5% (1/4W)
NH05 x x x 120	RF50S x x x x Ω	J ±5% (1/2W)
NH85 x x x 110	RF73B2A x x x x Ω	J ±5% (1/10W)
NH95 x x x 140	RF73B2E x x x x Ω	J ±5% (1/4W)

＊ Resistance value — Resistance value(0.1Ω - 10k Ω)

2. Matsushita Electronic Components Co., Ltd

Part No.(MJI)	Type No.(MEC)	Description
NF05 x x x 140	ERD-2FCJ x x x	(±5% 1/4W)
RF05 x x x 140		
NF02 x x x 140	ERD-2FCG x x x	(±2% 1/4W)
RF02 x x x 140		

＊Resistance value

Examples
＊Resistance value

0.1Ω	001	10Ω	100	1kΩ	102	100kΩ	104
0.5Ω	005	18Ω	180	2.7kΩ	272	680kΩ	684
1Ω	010	100Ω	101	10kΩ	103	1MΩ	105
6.8Ω	068	390Ω	391	22kΩ	223	4.7MΩ	475

ABBREVIATION AND MARKS

ANT.	: ANTENNA	BATT.	: BATTERY
CAP.	: CAPACITOR	CER.	: CERAMIC
CONN.	: CONNECTING	DIG.	: DIGITAL
HP	: HEADPHONE	MIC.	: MICROPHONE
μ-PRO	: MICROPROCESSOR	REC.	: RECORDING
RES.	: RESISTOR	SPK	: SPEAKER
SW	: SWITCH	TRANSF.	: TRANSFORMER
TRIM.	: TRIMMING	TRS.	: TRANSISTOR
VAR.	: VARIABLE	X' TAL	: CRYSTAL

NOTE ON SAFETY:

Symbol ⚠ Fire or electrical shock hazard. Only original parts should be used to replaced any part marked with symbol ⚠ Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

安全上の注意：

⚠ がついている部品は、安全上重要な部品です。必ず指定されている部品番号の部品を使用して下さい。

(VERS. :VERSION, U:U.S.A., F:JAPAN, K:FAR EAST, **:EUROPE)

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)
			MAIN CIRCUIT BOARD	
			DIODES	
D101		9965 000 04620	1SS355TE-17	*HD201320R
D103		9965 000 04620	1SS355TE-17	*HD201320R
D190		9965 000 04620	1SS355TE-17	*HD201320R
D191		4822 130 80523	DA204U	HZ20008210
D193		9965 000 04620	1SS355TE-17	*HD201320R
D300		9965 000 04620	1SS355TE-17	*HD201320R
D301		9965 000 04620	1SS355TE-17	*HD201320R
D500		9965 000 04620	1SS355TE-17	*HD201320R
D501		9965 000 04620	1SS355TE-17	*HD201320R
D850		9965 000 04621	UMN11N	*HD201330R
D901		9965 000 04621	UMN11N	*HD201330R
D902		9965 000 04620	1SS355TE-17	*HD201320R
D903		9965 000 04620	1SS355TE-17	*HD201320R
			INTEGRATED CIRCUITS	
IC100		nsp	IC CYC11AP000(HERCULES)	nsp
IC110		4822 209 83357	IC.NJM4560M	HC10029090
IC111		4822 209 71451	IC NJM4558M	HC10011090
IC120		9965 000 04622	IC BU4011BFV-E2	*HC105480R
IC121		9965 000 04624	IC BU4S81-TR	*HC105470R
IC201		nsp	IC CYC12MP000 (LION)	nsp
IC202		9965 000 04625	IC AN8623FBQ	*HC105420R
IC203		4822 209 71451	IC NJM4558M	HC10011090
IC250		9965 000 04626	IC EL5244C	*HC105500R
IC300		9965 000 04627	IC MN67700VRZB	*HC105220R
IC311		9965 000 04628	IC TC7SHU04FUTE85L	*HC105430R
IC490		9965 000 04629	IC MN66261	*HC105210R
IC500		9965 000 04630	IC CYC13DD000(MERMAID)	*HC105340R
IC501		9965 000 04631	IC HY628100ALG-55	*HC105350R
IC502		9965 000 01910	IC HY57V161610DTC-8	HC10092000
IC503		9965 000 04632	IC TC74VHC00FT	HC005105K0
IC550		9965 000 04633	IC TC74VHC157FTEL	HC005805K0
IC600		nsp	IC MB90F574APFV-G249-AKSYS1	nsp
IC602		9965 000 04634	IC MX23C1610MC-12	*HC105490R
IC603		4822 209 16907	IC M24C16-MN6T	*HC105440R
IC605		9965 000 04632	IC TC74VHC00FT	HC005105K0
IC606		9965 000 04635	IC TC74VHCT245AFTEL	*HC105230R
IC607		9965 000 04636	IC TC74VHC574FTEL	HC006205K0
IC610		4822 209 33521	IC TC7W04FUTE12L	HC10382050
IC611		9965 000 04632	IC TC74VHC00FT	HC005105K0
IC612		9965 000 04637	IC TC7WH74FUTE12L	*HC105450R
IC613		9965 000 04639	IC TC74VHC08FTEL	HC005305K0
IC614		9965 000 04640	IC TC74VHC86FT	*HC105330R
IC700		9965 000 04644	IC ZIVA3	*HU100380R
IC701		9965 000 01910	IC HY57V161610DTC-8	HC10092000
IC702		9965 000 01910	IC HY57V161610DTC-8	HC10092000
IC703		9965 000 04645	IC TC7WH157FUTE12L	*HC105370R
IC800		9965 000 04646	IC SM8701BM-ET	*HC105390R
IC801		4822 209 17194	IC TC7WU04FUTE12L	HC700405U0
IC802		9965 000 04628	IC TC7SHU04FUTE85L	*HC105430R
IC803		4822 209 17194	IC TC7WU04FUTE12L	HC700405U0
IC850		9965 000 04647	IC ADV7172 KST	*HC105380R
IC901		9965 000 04648	IC BA05FP-E2	*HC105530R
IC911		9965 000 04649	IC PCM1735E/2K	*HC105400R
IC931		9965 000 04649	IC PCM1735E/2K	*HC105400R
IC951		9965 000 04649	IC PCM1735E/2K	*HC105400R
IC971		9965 000 04649	IC PCM1735E/2K	*HC105400R
IC991		9965 000 04650	IC TC74HC4053AFTEL	*HC105360R
			TRANSISTORS	
TR100		9965 000 04651	UMG4N	BA21711000
TR101		9965 000 04651	UMG4N	BA21711000
TR102		9965 000 04651	UMG4N	BA21711000
TR103		9965 000 04651	UMG4N	BA21711000
TR104		9965 000 04651	UMG4N	BA21711000
TR105		9965 000 04651	UMG4N	BA21711000
TR106		9965 000 04651	UMG4N	BA21711000
TR110		4822 130 63618	FET 2SK880	HY208802B0
TR111		4822 130 63618	FET 2SK880	HY208802B0
TR112		9965 000 04652	FET 2SK2145	*HF200260R
TR117		4822 130 11352	DTC144TU	*BA000820R
TR167		9965 000 04653	FMY4A	*BA000850R
TR170		4822 130 11352	DTC144TU	*BA000820R
TR171		9965 000 04654	UMX3N	*BA000860R
TR172		4822 130 10698	2SA1576A Q/R/S	HX100012A0
TR190		4822 130 60856	DTC144EUA	BA20021210
TR200		4822 130 60669	2SC4081 R/S	HX340811B0
TR201		4822 130 60669	2SC4081 R/S	HX340811B0
TR202		4822 130 60669	2SC4081 R/S	HX340811B0
TR300		4822 130 61199	DTA144EU	BA1001421O
TR490		4822 130 60856	DTC144EUA	BA20021210
TR491		4822 130 11352	DTC144TU	*BA000820R
TR500		4822 130 11352	DTC144TU	*BA000820R
TR600		4822 130 60856	DTC144EUA	BA20021210
TR801		4822 130 10698	2SA1576A Q/R/S	HX100012A0
TR802		4822 130 10698	2SA1576A Q/R/S	HX100012A0
TR804		4822 130 10698	2SA1576A Q/R/S	HX100012A0
TR805		4822 130 10698	2SA1576A Q/R/S	HX100012A0
TR806		4822 130 10698	2SA1576A Q/R/S	HX100012A0
			RESISTORS	
VR110		9965 000 04655	TRIM T08 MVR32 222	*NY000290R
VR120		9965 000 04655	TRIM T08 MVR32 222	*NY000290R
VR121		9965 000 04655	TRIM T08 MVR32 222	*NY000290R
VR202		9965 000 04656	TRIM T08 MVR32 232	*NY000300R
			MISCELLANEOUS	
X301		9965 000 04643	X-TAL CX-16F 40.000MHz	*JX000640R
X601		9965 000 04659	RESONATOR CCR4.0MC3T	*FQ000410R
X800		9965 000 04660	X-TAL CX-11F 27MHz15PPM	*JX000650R
			MECHA CIRCUIT BOARD	
			DIODES	
D11		9965 000 04620	1SS355TE-17	*HD201320R
D31		9965 000 04620	1SS355TE-17	*HD201320R
D32		9965 000 04620	1SS355TE-17	*HD201320R
D33		9965 000 04661	UDZ10BTE-17	*HD301810R
			INTEGRATED CIRCUITS	
IC1		9965 000 04662	IC BA6859AFP-E2	*HC105320R
IC2		9965 000 04663	IC BA5938FM-E2	*HC105300R
IC3		4822 209 71451	IC NJM4558M	HC10011090
IC4		4822 209 83361	IC NJM2904M	*HC105520R
			TRANSISTORS	
TR1		4822 130 60856	DTC144EUA	BA20021210
TR31		9965 000 04667	2SB1132 P/Q/R	*HT200370R
TR32		9965 000 04667	2SB1132 P/Q/R	*HT200370R
TR33		4822 130 10698	2SA1576A Q/R/S	HX100012A0
TR34		4822 130 10698	2SA1576A Q/R/S	HX100012A0
TR35		4822 130 60669	2SC4081 R/S	HX340811B0
TR36		4822 130 63496	DTC114TU	BA20019210
TR37		4822 130 60669	2SC4081 R/S	HX340811B0
TR38		4822 130 61903	DTA114EUA	BA10026210
			MISCELLANEOUS	
P100		9965 000 04664	SOCKET 40FLZ-RSM1-RTB40P T44E	*YJ002180R
P200		9965 000 04665	SOCKET 30FLS-RSM1-TB30P T32E	*YJ002200R
P300		9965 000 04666	SOCKET SFW11R-1STE1 11P T24E	*YJ002190R